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BRITISH COLUMBIA SOIL INFORMATION SYSTEM VALIDATION PROCEDURES

(BCSIS — Volume 4)

by
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Overview of the British Columbia Soil Information System (BCSIS)

BCSIS is a computer based soil information system incorporating site, morphological, and laboratory data. The main objectives of the system are: to increase accessibility and reliability of soils information; to increase accuracy, volume, speed of response, and sophistication of interpretations; to increase speed of legend development; to increase ability to integrate soils data with other resource data. The system includes a number of easy to use functions related to data control, data management, and report generation. For data analysis, BCSIS is designed to be used in conjunction with the commercially available Statistical Analysis System (SAS). BCSIS resides on the Victoria mainframe computer but is accessible as well in other cities through the DATAPAC and SNA communications networks.

An extension of BCSIS is the Soil Laboratory System (SLS). SLS is an interactive, PDP 11/24 based minicomputer system designed to capture physical and chemical soils data determined in the soils laboratory in Kelowna. The main objectives of the system are: to increase the volume of samples which the lab can process, by eliminating or reducing the need to maintain lab notebooks and paper administrative records; to allow quick and accurate entry of the data into BCSIS files, by providing for the transference of final results to the mainframe in Victoria over the DATAPAC network. Raw data are entered into a number of video terminals located in the lab. Virtually all calculated results are performed automatically by the computer, provided that the raw data required by the calculations have already been entered. Reports on the laboratory analyses are printed and sent to the soil scientist requesting the analyses. The data may also be accessed and manipulated through BCSIS and SAS.

This document is one of a series describing BCSIS. These documents are written primarily for the professional soil scientist or ecologist, as opposed to the computer specialist. The titles within the series are as follows:

User Manual for the British Columbia Soil Information System (BCSIS Vol. 1).

Data Entry Procedures for Ecosystem Description Forms (BCSIS Vol. 2).

Data Entry Procedures for Soil Laboratory Forms (BCSIS Vol. 3).

British Columbia Soil Information System Validation Procedures (BCSIS Vol. 4).

Manipulation of Soils Data Using the British Columbia Soil Information System (BCSIS Vol. 5).

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Mark Sondheim

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PURPOSE

The British Columbia Soil Information System contains a series of algorithms designed to determine whether the site, soil, and laboratory entries meet various definition and consistency rules. These algorithms, as described in this document, compose the validation process. The process is defined in terms of three modules:

Part I considers consistency among data elements
Part II concerns the conditions and definitions of soil horizons
Part III involves validation of a pedon's taxonomic classification

These functions are explained in detail on pages 2, 59, and 67, respectively. Note that the validation process is used to test whether entries may or may not be erroneous; the user has the option of ignoring any error messages produced by the routines. If he consciously does this, he can instruct the system to consider the data as acceptable by changing the validation status from 'not ok' to 'ok'.

This document is required to decipher the error messages produced by the validation procedure of BCSIS. Examples of these error messages and of the appropriate responses to them may be found in BCSIS Vol. 1.

INTRODUCTION

In the tables which follow, an entry of "1" on the table indicates that the correspondence between the two values of the variables defining the table appears reasonable; that is, it appears to fall within our preconceived biases. Entries read as blank indicate that the correspondence seems unlikely. These should produce a message suggesting a possible error in the data.

The parameters used in each consistency table are listed above each table. The field name abbreviations are usually indicated as (vertical variable) vs (horizontal variable). In the case of more than one vertical variable, the remainder are listed consecutively and in the same format.

CONSISTENCY TABLES

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2	4	Consistence Moist	vs. Consistence-Dry-Wet-Plasticity
3	5	Effervescence	vs. pH - $CaCl_2$
4	6	Free Water	vs. Soil Drainage
5	7	Horizon Porosity	vs. Perviousness
6	8	Master Horizon and Suffixes	vs. Effervescence
7	9	Master Horizon and Suffixes	vs. Structure-Primary-Kind
8	10	Soil H_2O Ret. 10.0 KPA	vs. Type of Organic (O) Master Horizon
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10	12	Nutrient Regime	vs. Surface Substrate - % Cover
11	13	Percent Rubbed Fibre	vs. Type of Organic (O) Master Horizon
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13	15	Site Position Meso	vs. Ecological Moisture Regime
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TABLE 1: BULKDEN vs HDESMSTS

Bulk Density	Type of Organic Master Horizon If Master Horizon is O and corresponding Suffix is: F	M	H
<.075	1		
.075; 0.195		1	
>0.195			1

TABLE 2: CONSMST vs CONSDRY, CONSMST vs CONSWET, CONSMST vs CONSPLST

Consistence Moist	Consistence: Dry							Wet				Plasticity			
	1	2	3	4	5	6	7	1	2	3	4	1	2	3	4
1	1							1				1			
2		1	1					1	1			1	1		
3			1	1	1				1	1			1	1	
4				1	1	1			1	1	1		1	1	1
5					1	1				1	1			1	1
6							1		1	1	1		1	1	1

TABLE 3: EFFDEGR vs PH

Effervescence	pH - $CaCl_2$ ≤ 6.5	pH - $CaCl_2$ > 6.5
X	1	
VW		1
W		1
M		1
S		1

TABLE 4: FREEWTR vs SOILDRNG

Free Water	Soil Drainage					
	A	B	C	D	E	F
A				1	1	1
B	1	1	1	1	1	

TABLE 5: TXT+HPOR vs PERV

Horizon Porosity	Perviousness		
	A	B	C
Soil Texture is coarse: S,CS,MS,FS,VFS, LS,LCS,LMS,LFS,LVFS, SL, CSL, MSL, FSL, VFSL Horizon Porosity			
S		1	1
M	1	1	1
H	1	1	1
Soil Texture is medium: L,SIL,SI,SCL,CL,SICL Horizon Porosity			
S			1
M		1	1
H	1	1	1
Soil Texture is fine: SC,SIC,C,HC Horizon Porosity			
S			1
M		1	1
H	1	1	1

TABLE 6: HDESMSTS vs EFFDEGR

Master Horizon and Suffixes	Effervescence				
	X	VW	W	M	S
Any level with k or ca suffix		1	1	1	1
All other entries	1				

TABLE 7: HDESMSTS vs STRCKND1

Master Horizon and Suffixes	Structure-Primary-Kind								
	SGR	MA	ABK	SBK	GR	PL	PR	CDL	CDY
A with p only	1	1	1	1	1	1			1
A with h only			1	1	1	1	1	1	
A with h and e only			1	1	1	1	1	1	
A with e only	1			1	1	1			
A with ej only	1			1	1	1			
A with e and g only	1	1	1	1	1	1			
AB (no suffixes)	1	1	1	1	1	1	1	1	
BA (no suffixes)	1	1	1	1	1	1	1	1	
B with m only	1	1	1	1	1	1	1	1	
B with t only			1	1			1	1	
B with f only or w. h & f only			1	1	1				
B with h only			1	1	1				
B with g only			1	1	1				1
BC (no suffixes)	1	1	1	1					
CB (no suffixes)	1	1	1	1					
C (no suffixes)	1	1	1	1					
C with g only	1	1	1	1					
L (inc. LF,LH,LFH)		1				1			
F (inc. FH)		1			1	1			
H		1	1	1	1	1			1
All other entries	1	1	1	1	1	1	1	1	

Note: w. abbreviated form of with

TABLE 8: MOISSTAT vs HDESMSTS

Soil H_2O Ret. 10.0 KPA	Type of Organic Master Horizon If Master Horizon is O and corresponding Suffix is: F	M	H
<0.48	1		
0.48, 0.70		1	
>0.70			1

TABLE 9: MOTABUN1 vs DRNG/HUP, MOTSIZE1 vs DRNG/HUP, MOTCON1 vs DRNG/HUP

Mottles	Horizon Upper Boundary <50 Soil Drainage						Horizon Upper Boundary >50 Soil Drainage					
	A	B	C	D	E	F	A	B	C	D	E	F
Abundance												
X	1	1	1				1	1				
F				1	1	1			1	1	1	1
C				1	1	1				1	1	1
M				1	1	1				1	1	1
Size												
F				1	1	1			1	1	1	1
M				1	1	1			1	1	1	1
C				1	1	1			1	1	1	1
Contrast												
F				1	1	1			1	1	1	1
D					1	1				1	1	1
P					1	1				1	1	1

TABLE 10: NUTREG vs COVER

Nutrient Regime	Surface Substrate - % Cover					
	1	2	3	4	5	6
A	1	1	1	1		1
B	1	1	1	1		1
C	1			1	1	1
D				1	1	1
E				1	1	1
F				1	1	1

1 Decaying Wood:>75 (DECWOOD)
2 Bedrock:>75 (BEDROCK)
3 Cobbles and Stones:>75 (COBSTONE)
4 Mineral Soil:>75 (MINSOIL)
5 Organic Matter:>75 (ORGMAT)
6 Water:>75 (WATER)

TABLE 11: RUBFIBR% vs HDESMSTS

% Rubbed Fibre	Type of Organic Master Horizon If Master Horizon is O and corresponding Suffix is: F	M	H
>40	1		
40, 10		1	
<10			1

TABLE 12: PERV vs SOILDRNG

Perviousness	Soil Drainage					
	A	B	C	D	E	F
A	1	1				
B		1	1	1	1	1
C		1	1	1	1	1

TABLE 13: STPOSMES vs ECOMSTRG

Site Position Meso	Ecological Moisture Regime								
	A	B	C	D	E	F	G	H	I
A	1	1	1	1					
B	1	1	1	1	1				
C	1	1	1	1	1	1			
D		1	1	1	1	1	1	1	
E				1	1	1	1	1	1
F					1	1	1	1	1
G	1	1	1	1	1	1	1	1	1

TABLE 14: STPOSMES vs NUTREG

Site Position Meso	Nutrient Regime					
	A	B	C	D	E	F
A	1	1				
B	1	1	1			
C		1	1	1		
D		1	1	1	1	
E			1	1	1	1
F			1	1	1	1
G	1	1	1	1	1	1

TABLE 15: STPOSMES vs USLP/SLP

Site Position Meso	Ratio of Meso Upslope Length/Meso Slope Length			
	1	2	3	4
A	1			
B	1	1		
C		1	1	
D			1	1
E			1	1
F				1
G	1			1

1 ≤ 0.25
2 > 0.25, ≤ 0.50
3 > 0.50, ≤ 0.75
4 > 0.75

TABLE 16: STPOSMES vs SOILDRNG

Site Position Meso	Soil Drainage					
	A	B	C	D	E	F
A	1	1	1			
B	1	1	1			
C	1	1	1			
D	1	1	1	1		
E	1	1	1	1	1	
F	1	1	1	1	1	1
G	1	1	1	1	1	1

TABLE 17: SLOPE vs SOILDRNG

Slope Percent	Soil Drainage					
	A	B	C	D	E	F
0.5	1	1	1	1	1	1
>0.5, 2.5	1	1	1	1	1	1
>2.5, 5	1	1	1	1	1	1
>5, 10	1	1	1	1	1	
>10, 15	1	1	1	1	1	
>15, 30	1	1	1	1	1	
>30, 45	1	1	1	1		
>45, 70	1	1	1	1		
>70, 100	1	1	1			
>100	1	1				

TABLE 18: SCLS78 vs FLDHZRD

Soil Classification	Flood Hazard				
	A	B	C	D	E
Orthic Melanic Brunisol O.MB				1	1
Eluviated Melanic Brunisol E.MB				1	1
Gleyed Melanic Brunisol GL.MB			1	1	1
Gleyed Eluviated Melanic Brunisol GLE.MB			1	1	1
Orthic Eutric Brunisol O.EB				1	1
Eluviated Eutric Brunisol E.EB				1	1
Gleyed Eutric Brunisol GL.EB			1	1	1
Gleyed Eluviated Eutric Brunisol GLE.EB			1	1	1
Orthic Sombric Brunisol O.SB				1	1
Eluviated Sombric Brunisol E.SB				1	1
Duric Sombric Brunisol DU.SB			1	1	1
Gleyed Sombric Brunisol GL.SB			1	1	1
Gleyed Eluviated Sombric Brunisol GLE.SB			1	1	1
Orthic Dystric Brunisol O.DYB				1	1
Eluviated Dystric Brunisol E.DYB				1	1
Duric Dystric Brunisol DU.DYB			1	1	1
Gleyed Dystric Brunisol GL.DYB			1	1	1
Gleyed Eluviated Dystric Brunisol GLE.DYB			1	1	1
Orthic Brown O.B				1	1
Rego Brown R.B				1	1
Calcareous Brown CA.B				1	1
Eluviated Brown E.B				1	1
Solonetzic Brown SZ.B				1	1
Gleyed Brown GL.B			1	1	1
Gleyed Rego Brown GLR.B			1	1	1
Gleyed Calcareous Brown GLCA.B			1	1	1
Gleyed Eluviated Brown GLE.B			1	1	1
Gleyed Solonetzic Brown GLSZ.B			1	1	1
Orthic Dark Brown O.DB				1	1
Rego Dark Brown R.DB				1	1
Calcareous Dark Brown CA.DB				1	1
Eluviated Dark Brown E.DB				1	1
Solonetzic Dark Brown SZ.DB				1	1
Gleyed Dark Brown GL.DB			1	1	1
Gleyed Rego Dark Brown GLR.DB			1	1	1
Gleyed Calcareous Dark Brown GLCA.DB			1	1	1
Gleyed Eluviated Dark Brown GLE.DB			1	1	1
Gleyed Solonetzic Dark Brown GLSZ.DB			1	1	1

TABLE 18 (Cont'd): SCLS78 vs FLDHZRD

Soil Classification	Flood Hazard				
	A	B	C	D	E
Orthic Black O.BL				1	1
Rego Black R.BL				1	1
Calcareous Black CA.BL				1	1
Eluviated Black E.BL				1	1
Solonetzic Black SZ.BL				1	1
Gleyed Black GL.BL			1	1	1
Gleyed Rego Black GLR.BL			1	1	1
Gleyed Calcareous Black GLCA.BL			1	1	1
Gleyed Eluviated Black GLE.BL			1	1	1
Gleyed Solonetzic Black GLSZ.BL			1	1	1
Orthic Dark Gray O.DG				1	1
Rego Dark Gray R.DG				1	1
Calcareous Dark Gray CA.DG				1	1
Solonetzic Dark Gray SZ.DG				1	1
Gleyed Dark Gray GL.DG			1	1	1
Gleyed Rego Dark Gray GLR.DG			1	1	1
Gleyed Calcareous Dark Gray GLCA.DG			1	1	1
Gleyed Solonetzic Dark Gray GLSZ.DG			1	1	1
Orthic Turbic Cryosol O.TC				1	1
Brunisolic Turbic Cryosol BR.TC				1	1
Regosolic Turbic Cryosol R.TC				1	1
Gleysolic Turbic Cryosol GL.TC	1	1	1	1	1
Orthic Static Cryosol O.SC				1	1
Brunisolic Static Cryosol BR.SC				1	1
Regosolic Static Cryosol R.SC				1	1
Gleyosolic Static Cryosol GL.SC	1	1	1	1	1
Fibric Organic Cryosol FI.OC				1	1
Mesic Organic Cryosol ME.OC				1	1
Humic Organic Cryosol HU.OC				1	1
Terric Fibric Organic Cryosol TFI.OC				1	1
Terric Mesic Organic Cryosol TME.OC				1	1
Terric Humic Organic Cryosol THU.OC				1	1
Glacic Organic Cryosol GC.OC				1	1
Orthic Humic Gleysol O.HG	1	1	1	1	1
Rego Humic Gleysol R.HG	1	1	1	1	1
Fera Humic Gleysol FE.HG	1	1	1	1	1
Orthic Gleysol O.LG	1	1	1	1	1
Rego Gleysol O.G	1	1	1	1	1
Fera Gleysol FE.G GLR.B	1	1	1	1	1

TABLE 18 (Cont'd): SCLS78 vs FLDHZRD

Soil Classification	Flood Hazard				
	A	B	C	D	E
Orthic Luvic Gleysol O.LG	1	1	1	1	1
Humic Luvic Gleysol HU.LG	1	1	1	1	1
Fera Luvic Gleysol FE.LG	1	1	1	1	1
Fragic Luvic Gleysol FR.LG	1	1	1	1	1
Orthic Gray Brown Luvisol O.GBL				1	1
Brunisolic Gray Brown Luvisol BR.GBL				1	1
Podzolic Gray Brown Luvisol PZ.GBL				1	1
Gleyed Gray Brown Luvisol GL.GBL			1	1	1
Gleyed Brunisolic Gray Brown Luvisol GLBR.GBL			1	1	1
Gleyed Podzolic Gray Brown Luvisol GLPZ.GBL			1	1	1
Orthic Gray Luvisol O.GL				1	1
Dark Gray Luvisol D.GL				1	1
Brunisolic Gray Luvisol BR.GL				1	1
Podzolic Gray Luvisol PZ.GL				1	1
Solonetzic Gray Luvisol SZ.GL				1	1
Fragic Gray Luvisol FR.GL				1	1
Gleyed Gray Luvisol GL.GL			1	1	1
Gleyed Dark Gray Luvisol GLD.GL			1	1	1
Gleyed Brunisolic Gray Luvisol GLBR.GL			1	1	1
Gleyed Podzolic Gray Luvisol GLPZ.GL			1	1	1
Gleyed Solonetzic Gray Luvisol GLSZ.GL			1	1	1
Gleyed Fragic Gray Luvisol GLFR.GL			1	1	1
Typic Fibrisol TY.F	1	1	1	1	1
Mesic Fibrisol ME.F	1	1	1	1	1
Humic Fibrisol HU.F	1	1	1	1	1
Limno Fibrisol LM.F	1	1	1	1	1
Cumulo Fibrisol CU.F	1	1	1	1	1
Terric Fibrosil T.F	1	1	1	1	1
Terric Mesic Fibrisol TME.F	1	1	1	1	1
Terric Humic Fibrisol THU.F	1	1	1	1	1
Hydric Fibrisol HY.F	1	1	1	1	1
Typic Mesisol TY.M	1	1	1	1	1
Fibric Mesisol FI.M	1	1	1	1	1
Humic Mesisol HU.M	1	1	1	1	1
Limno Mesisol LM.M	1	1	1	1	1
Cumulo Mesisol CU.M	1	1	1	1	1
Terric Mesisol T.M	1	1	1	1	1
Terric Fibric Mesisol TFI.M	1	1	1	1	1
Terric Humic Mesisol THU.M	1	1	1	1	1
Hydric Mesisol HY.M	1	1	1	1	1

TABLE 18 (Cont'd): SCLS78 vs FLDHZRD

Soil Classification	Flood Hazard				
	A	B	C	D	E
Typic Humisol TY.H	1	1	1	1	1
Fibric Humisol FI.H	1	1	1	1	1
Mesic Humisol ME.H	1	1	1	1	1
Limno Humisol LM.H	1	1	1	1	1
Cumulo Humisol CU.H	1	1	1	1	1
Terric Humisol T.H	1	1	1	1	1
Terric Fibric Humisol TFI.H	1	1	1	1	1
Terric Mesic Humisol TME.H	1	1	1	1	1
Hydric Humisol HY.H	1	1	1	1	1
Typic Folisol TY.FO					1
Orthic Humic Podzol O.HP				1	1
Orstein Humic Podzol OT.HP				1	1
Placic Humic Podzol P.HP				1	1
Duric Humic Podzol DU.GP				1	1
Fragic Humic Podzol FR.HP				1	1
Orthic Ferro-Humic Podzol O.FHP				1	1
Orstein Ferro-Humic Podzol OT.FHP				1	1
Placic Ferro-Humic Podzol P.FHP				1	1
Duric Ferro-Humic Podzol DU.FHP				1	1
Fragic Ferro-Humic Podzol FR.FHP				1	1
Luvisolic Ferro-Humic Podzol LU.FHP				1	1
Sombric Ferro-Humic Podzol SM.FHP				1	1
Gleyed Ferro-Humic Podzol GL.FHP			1	1	1
Gleyed Orstein Ferro-Humic Podzol GLOT.FHP			1	1	1
Gleyed Sombric Ferro-Humic Podzol GLSM.FHP			1	1	1
Orthic Humo-Ferric Podzol O.HFP				1	1
Orstein Humo-Ferric Podzol OT.HFP				1	1
Placic Humo-Ferric Podzol P.HFP				1	1
Duric Humo-Ferric Podzol DU.HFP				1	1
Fragic Humo-Ferric Podzol FR.HFP				1	1
Luvisolic Humo-Ferric Podzol LU.HFP				1	1
Sombric Humo-Ferric Podzol SM.HFP				1	1
Gleyed Humo-Ferric Podzol GL.HFP			1	1	1
Gleyed Orstein Humo-Ferric Podzol GLOT.HFP			1	1	1
Gleyed Sombric Humo-Ferric Podzol GLSM.HFP			1	1	1
Orthic Regosol O.R	1	1	1	1	1
Cumulic Regosol CU.R	1	1	1	1	1
Gleyed Regosol GL.R	1	1	1	1	1
Gleyed Cumulic Regosol GLCU.R	1	1	1	1	1

TABLE 18 (Cont'd): SCLS78 vs FLDHZRD

Soil Classification	Flood Hazard				
	A	B	C	D	E
Orthic Humic Regosol O.HR	1	1	1	1	1
Cumlic Humic Regosol CU.HR	1	1	1	1	1
Gleyed Humic Regosol GL.HR	1	1	1	1	1
Gleyed Cumulic Humic Regosol GLCU.HR	1	1	1	1	1
Brown Solonetz B.SZ				1	1
Dark Brown Solonetz DB.SZ				1	1
Black Solonetz BL.SZ				1	1
Alakaline Solonetz A.SZ				1	1
Gleyed Brown Solonetz GLB.SZ			1	1	1
Gleyed Dark Brown Solonetz GLDB.SZ			1	1	1
Gleyed Black Solonetz GLBL.SZ			1	1	1
Brown Solodized Solonetz B.SS				1	1
Dark Brown Solodized Solonetz DB.SS				1	1
Black Solodized Solonetz BL.SS				1	1
Dark Gray Solidized Solonetz DG.SS				1	1
Gray Solodized Solonetz G.SS				1	1
Gleyed Brown Solodized Solonetz GLB.SS			1	1	1
Gleyed Dark Brown Solodized Solonetz GLDB.SS			1	1	1
Gleyed Black Solodized Solonetz GLBL.SS			1	1	1
Gleyed Dark Gray Solodized Solonetz GLDG.SS			1	1	1
Gleyed Gray Solodized Solonetz GLG.SS			1	1	1
Brown Solod B.SO				1	1
Dark Brown Solod DB.SO				1	1
Black Solod BL.SO				1	1
Dark Gray Solod DG.SO				1	1
Gray Solod G.SO				1	1
Gleyed Brown Solod GLB.SO			1	1	1
Gleyed Dark Brown Solod GLDB.SO			1	1	1
Gleyed Black Solod GLBL.SO			1	1	1
Gleyed Dark Gray Solod GLDG.SO			1	1	1
Gleyed Gray Solod GLG.SO			1	1	1

TABLE 19: SCLS78 vs HUMCLS

Soil Classification	Humus Form Classification																
	Z.MU	R.MU	T.MD	W.MD	ML.MD	F.MR	HF.MR	H.MR	FH.MR	FP.MR	MP.MR	HP.MR	.AN	.MU	.MD	.MR	P.MR
Orthic Melanic Brunisol O.MB	1	1												1			
Eluviated Melanic Brunisol E.MB	1	1												1			
Gleyed Melanic Brunisol GL.MB	1	1												1			
Gleyed Eluviated Melanic Brunisol GLE.MB	1	1												1			
Orthic Eutric Brunisol O.EB		1		1										1	1		
Eluviated Eutric Brunisol E.EB		1		1										1	1		
Gleyed Eutric Brunisol GL.EB	1	1		1	1									1	1		
Gleyed Eluviated Eutric Brunisol GLE.EB				1	1										1		
Orthic Sombric Brunisol O.SB	1	1		1										1	1		
Eluviated Sombric Brunisol E.SB	1	1		1										1	1		
Duric Sombric Brunisol DU.SB	1	1		1										1	1		
Gleyed Sombric Brunisol GL.SB	1	1		1										1	1		
Gleyed Eluviated Sombric Brunisol GLE.SB	1	1		1										1	1		
Orthic Dystric Brunisol O.DYB				1		1									1	1	
Eluviated Dystric Brunisol E.DYB						1	1									1	
Duric Dystric Brunisol DU.DYB						1	1									1	
Gleyed Dystric Brunisol GL.DYB							1	1	1							1	
Gleyed Eluviated Dystric Brunisol GLE.DYB							1	1	1							1	
Orthic Brown O.B		1												1			
Rego Brown R.B		1												1			
Calcareous Brown CA.B		1												1			
Eluviated Brown E.B		1												1			
Solonetzic Brown SZ.B		1												1			
Gleyed Brown GL.B	1	1												1			
Gleyed Rego Brown GLR.B	1	1												1			
Gleyed Calcareous Brown GLCA.B	1	1												1			
Gleyed Eluviated Brown GLE.B	1	1												1			
Gleyed Solonetzic Brown GLSZ.B	1	1												1			
Orthic Dark Brown O.DB		1												1			
Rego Dark Brown R.DB		1												1			
Calcareous Dark Brown CA.DB		1												1			
Eluviated Dark Brown E.DB		1												1			
Solonetzic Dark Brown SZ.DB		1												1			
Gleyed Dark Brown GL.DB	1	1												1			
Gleyed Rego Dark Brown GLR.DB	1	1												1			
Gleyed Calcareous Dark Brown GLCA.DB	1	1												1			
Gleyed Eluviated Dark Brown GLE.DB	1	1												1			

TABLE 19 (Cont'd): SCLS78 vs HUMCLS

Soil Classification	Humus Form Classification																
	Z.MU	R.MU	T.MD	W.MD	ML.MD	F.MR	HF.MR	H.MR	FH.MR	FP.MR	MP.MR	HP.MR	.AN	.MU	.MD	.MR	P.MR
Gleyed Solonetzic Dark Brown GLSZ.DB	1	1												1			
Orthic Black O.BL		1												1			
Rego Black R.BL		1												1			
Calcareous Black CA.BL		1												1			
Eluviated Black E.BL		1												1			
Solonetzic Black SZ.BL		1												1			
Gleyed Black GL.BL	1	1												1			
Gleyed Rego Black GLR.BL	1	1												1			
Gleyed Calcareous Black GLCA.BL	1	1												1			
Gleyed Eluviated Black GLE.BL	1	1												1			
Gleyed Solonetzic Black GLSZ.BL	1	1												1			
Orthic Dark Gray O.DG		1												1			
Rego Dark Gray R.DG		1												1			
Calcareous Dark Gray CA.DG		1												1			
Solonetzic Dark Gray SZ.DG		1												1			
Gleyed Dark Gray GL.DG	1	1												1			
Gleyed Rego Dark Gray GLR.DG	1	1												1			
Gleyed Calcareous Dark Gray GLCA.DG	1	1												1			
Gleyed Solonetzic Dark Gray GLSZ.DG	1	1												1			
Orthic Turbic Cryosol O.TC						1	1									1	
Brunisolic Turbic Cryosol BR.TC						1	1									1	
Regosolic Turbic Cryosol R.TC						1	1									1	
Gleysolic Turbic Cryosol GL.TC							1									1	
Orthic Static Cryosol O.SC						1	1									1	
Brunisolic Static Cryosol BR.SC						1	1									1	
Regosolic Static Cryosol R.SC						1	1									1	
Gleyosolic Static Cryosol GL.SC							1									1	
Fibric Organic Cryosol FI.OC										1	1					1	1
Mesic Organic Cryosol ME.OC										1	1					1	1
Humic Organic Cryosol HU.OC											1	1				1	1
Terric Fibric Organic Cryosol TFI.OC										1						1	1
Terric Mesic Organic Cryosol TME.OC											1					1	1
Terric Humic Organic Cryosol THU.OC												1				1	1
Glacic Organic Cryosol GC.OC										1	1					1	1
Orthic Humic Gleysol O.HG									1							1	
Rego Humic Gleysol R.HG									1							1	
Fera Humic Gleysol FE.HG									1							1	

TABLE 19 (Cont'd): SCLS78 vs HUMCLS

Soil Classification	Humus Form Classification																
	Z.MU	R.MU	T.MD	W.MD	ML.MD	F.MR	HF.MR	H.MR	FH.MR	FP.MR	MP.MR	HP.MR	.AN	.MU	.MD	.MR	P.MR
Orthic Gleysol O.LG	1					1	1	1	1	1	1			1		1	1
Rego Gleysol O.G	1					1	1	1	1	1	1			1		1	1
Fera Gleysol FE.G GLR.B						1	1	1	1	1	1					1	1
Orthic Luvic Gleysol O.LG	1					1	1			1	1			1		1	1
Humic Luvic Gleysol HU.LG	1						1	1	1	1	1			1		1	1
Fera Luvic Gleysol FE.LG							1	1	1	1	1					1	1
Fragic Luvic Gleysol FR.LG							1	1	1	1	1					1	1
Orthic Gray Brown Luvisol O.GBL	1		1											1	1		
Brunisolic Gray Brown Luvisol BR.GBL	1		1						1					1	1	1	
Podzolic Gray Brown Luvisol PZ.GBL	1		1				1		1					1	1	1	
Gleyed Gray Brown Luvisol GL.GBL	1													1			
Gleyed Brunisolic Gray Brown Luvisol GLBR.GBL	1		1				1		1					1	1	1	
Gleyed Podzolic Gray Brown Luvisol GLPZ.GBL	1		1				1	1	1					1	1	1	
Orthic Gray Luvisol O.GL			1	1		1									1	1	
Dark Gray Luvisol D.GL	1	1	1			1	1							1	1	1	
Brunisolic Gray Luvisol BR.GL				1		1	1								1	1	
Podzolic Gray Luvisol PZ.GL						1	1									1	
Solonetzic Gray Luvisol SZ.GL			1	1	1												
Fragic Gray Luvisol FR.GL		1	1	1	1									1	1		
Gleyed Gray Luvisol GL.GL			1	1		1	1		1						1	1	
Gleyed Dark Gray Luvisol GLD.GL		1	1	1	1			1						1	1	1	
Gleyed Brunisolic Gray Luvisol GLBR.GL				1		1	1		1						1	1	
Gleyed Podzolic Gray Luvisol GLPZ.GL						1	1		1							1	
Gleyed Solonetzic Gray Luvisol GLSZ.GL	1	1	1		1									1	1		
Gleyed Fragic Gray Luvisol GLFR.GL		1				1	1	1	1						1	1	
Typic Fibrisol TY.F																	
Mesic Fibrisol ME.F																	
Humic Fibrisol HU.F																	
Limno Fibrisol LM.F																	
Cumulo Fibrisol CU.F																	
Terric Fibrosil T.F																	
Terric Mesic Fibrisol TME.F																	
Terric Humic Fibrisol THU.F																	
Hydric Fibrisol HY.F																	
Typic Mesisol TY.M																	
Fibric Mesisol FI.M																	
Humic Mesisol HU.M																	
Limno Mesisol LM.M																	

TABLE 19 (Cont'd): SCLS78 vs HUMCLS

Soil Classification	Humus Form Classification																
	Z.MU	R.MU	T.MD	W.MD	ML.MD	F.MR	HF.MR	H.MR	FH.MR	FP.MR	MP.MR	HP.MR	.AN	.MU	.MD	.MR	P.MR
Cumulo Mesisol CU.M																	
Terric Mesisol T.M																	
Terric Fibric Mesisol TFI.M																	
Terric Humic Mesisol THU.M																	
Hydric Mesisol HY.M																	
Typic Humisol TY.H																	
Fibric Humisol FI.H																	
Mesic Humisol ME.H																	
Limno Humisol LM.H																	
Cumulo Humisol CU.H																	
Terric Humisol T.H																	
Terric Fibric Humisol TFI.H																	
Terric Mesic Humisol TME.H																	
Hydric Humisol HY.H																	
Typic Folisol TY.FO																	
Orthic Humic Podzol O.HP						1	1	1	1		1	1				1	1
Orstein Humic Podzol OT.HP						1	1	1	1		1	1				1	1
Placic Humic Podzol P.HP						1	1	1	1		1	1				1	1
Duric Humic Podzol DU.GP						1	1	1	1		1	1				1	1
Fragic Humic Podzol FR.HP						1	1	1	1		1	1				1	1
Orthic Ferro-Humic Podzol O.FHP						1	1		1		1	1				1	1
Orstein Ferro-Humic Podzol OT.FHP						1	1		1		1	1				1	1
Placic Ferro-Humic Podzol P.FHP						1	1		1		1	1				1	1
Duric Ferro-Humic Podzol DU.FHP						1	1		1		1	1				1	1
Fragic Ferro-Humic Podzol FR.FHP						1	1		1		1	1				1	1
Luvisolic Ferro-Humic Podzol LU.FHP						1	1		1		1	1				1	1
Sombric Ferro-Humic Podzol SM.FHP	1	1					1		1		1	1		1		1	1
Gleyed Ferro-Humic Podzol GL.FHP						1	1	1	1		1	1				1	1
Gleyed Orstein Ferro-Humic Podzol GLOT.FHP						1	1	1	1		1	1				1	1
Gleyed Sombric Ferro-Humic Podzol GLSM.FHP							1	1	1		1	1				1	1
Orthic Humo-Ferric Podzol O.HFP						1	1		1							1	
Orstein Humo-Ferric Podzol OT.HFP						1	1		1							1	
Placic Humo-Ferric Podzol P.HFP						1	1	1	1		1					1	1
Duric Humo-Ferric Podzol DU.HFP						1	1		1							1	
Fragic Humo-Ferric Podzol FR.HFP						1	1		1							1	
Luvisolic Humo-Ferric Podzol LU.HFP						1	1		1							1	
Sombric Humo-Ferric Podzol SM.HFP	1	1					1		1					1		1	
Gleyed Humo-Ferric Podzol GL.HFP							1	1	1		1	1	1			1	1

TABLE 19 (Cont'd): SCLS78 vs HUMCLS

Soil Classification	Humus Form Classification																
	Z.MU	R.MU	T.MD	W.MD	ML.MD	F.MR	HF.MR	H.MR	FH.MR	FP.MR	MP.MR	H?.MR	.AN	.MU	.MD	.MR	P.MR
Gleyed Orstein Humo-Ferric Podzol GLOT.HFP							1	1	1		1	1	1			1	1
Gleyed Sombric Humo-Ferric Podzol GLSM.HFP	1	1					1	1	1		1	1	1	1		1	1
Orthic Regosol O.R	1	1	1	1	1	1	1	1	1					1	1	1	
Cumulic Regosol CU.R	1	1	1	1	1	1	1	1	1					1	1	1	
Gleyed Regosol GL.R	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1
Gleyed Cumulic Regosol GLCU.R	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1
Orthic Humic Regosol O.HR	1	1	1	1	1		1	1	1					1	1	1	
Cumlic Humic Regosol CU.HR	1	1	1	1	1		1	1	1					1	1	1	
Gleyed Humic Regosol GL.HR	1	1	1	1	1		1	1	1		1	1	1	1	1	1	1
Gleyed Cumulic Humic Regosol GLCU.HR	1	1	1	1	1		1	1	1		1	1	1	1	1	1	1
Brown Solonetz B.SZ	1	1	1	1	1									1	1		
Dark Brown Solonetz DB.SZ	1	1	1	1	1									1	1		
Black Solonetz BL.SZ	1	1	1		1									1	1		
Alakaline Solonetz A.SZ	1	1	1		1								1	1	1		
Gleyed Brown Solonetz GLB.SZ	1	1	1		1								1	1	1		
Gleyed Dark Brown Solonetz GLDB.SZ	1	1	1		1								1	1	1		
Gleyed Black Solonetz GLBL.SZ	1	1	1		1								1	1	1		
Brown Solodized Solonetz B.SS	1	1	1		1									1	1		
Dark Brown Solodized Solonetz DB.SS	1	1	1		1									1	1		
Black Solodized Solonetz BL.SS	1	1	1		1									1	1		
Dark Gray Solidized Solonetz DG.SS	1	1	1		1									1	1		
Gray Solodized Solonetz G.SS	1	1	1		1									1	1		
Gleyed Brown Solodized Solonetz GLB.SS	1	1	1		1								1	1	1		
Gleyed Dark Brown Solodized Solonetz GLDB.SS	1	1	1		1								1	1	1		
Gleyed Black Solodized Solonetz GLBL.SS	1	1	1		1								1	1	1		
Gleyed Dark Gray Solodized Solonetz GLDG.SS	1	1	1		1								1	1	1		
Gleyed Gray Solodized Solonetz GLG.SS	1	1	1		1								1	1	1		
Brown Solod B.SO	1	1	1		1									1	1		
Dark Brown Solod DB.SO	1	1	1		1									1	1		
Black Solod BL.SO	1	1	1		1									1	1		
Dark Gray Solod DG.SO	1	1	1		1									1	1		
Gray Solod G.SO	1	1	1		1									1	1		
Gleyed Brown Solod GLB.SO	1	1	1		1								1	1	1		
Gleyed Dark Brown Solod GLDB.SO	1	1	1		1								1	1	1		
Gleyed Black Solod GLBL.SO	1	1	1		1								1	1	1		
Gleyed Dark Gray Solod GLDG.SO	1	1	1		1								1	1	1		
Gleyed Gray Solod GLG.SO	1	1	1		1								1	1	1		

TABLE 20: SCLS78 vs SLOPE

Soil Classification	Slope Percent									
	A	B	C	D	E	F	G	H	I	J
Orthic Melanic Brunisol O.MB	1	1	1	1	1	1	1	1	1	1
Eluviated Melanic Brunisol E.MB	1	1	1	1	1	1	1	1		
Gleyed Melanic Brunisol GL.MB	1	1	1	1	1	1				
Gleyed Eluviated Melanic Brunisol GLE.MB	1	1	1	1	1	1				
Orthic Eutric Brunisol O.EB	1	1	1	1	1	1	1	1	1	1
Eluviated Eutric Brunisol E.EB	1	1	1	1	1	1	1	1		
Gleyed Eutric Brunisol GL.EB	1	1	1	1	1	1				
Gleyed Eluviated Eutric Brunisol GLE.EB	1	1	1	1	1	1				
Orthic Sombric Brunisol O.SB	1	1	1	1	1	1	1	1	1	1
Eluviated Sombric Brunisol E.SB	1	1	1	1	1	1	1	1		
Duric Sombric Brunisol DU.SB	1	1	1	1	1	1	1	1		
Gleyed Sombric Brunisol GL.SB	1	1	1	1	1	1				
Gleyed Eluviated Sombric Brunisol GLE.SB	1	1	1	1	1	1				
Orthic Dystric Brunisol O.DYB	1	1	1	1	1	1	1	1	1	1
Eluviated Dystric Brunisol E.DYB	1	1	1	1	1	1	1	1		
Duric Dystric Brunisol DU.DYB	1	1	1	1	1	1	1	1		
Gleyed Dystric Brunisol GL.DYB	1	1	1	1	1	1				
Gleyed Eluviated Dystric Brunisol GLE.DYB	1	1	1	1	1	1				
Orthic Brown O.B	1	1	1	1	1	1	1	1		
Rego Brown R.B	1	1	1	1	1	1	1	1	1	1
Calcareous Brown CA.B	1	1	1	1	1	1	1	1	1	1
Eluviated Brown E.B	1	1	1	1	1	1	1	1		
Solonetzic Brown SZ.B	1	1	1	1	1	1				
Gleyed Brown GL.B	1	1	1	1						
Gleyed Rego Brown GLR.B	1	1	1	1						
Gleyed Calcareous Brown GLCA.B	1	1	1	1						
Gleyed Eluviated Brown GLE.B	1	1	1	1						
Gleyed Solonetzic Brown GLSZ.B	1	1	1	1						
Orthic Dark Brown O.DB	1	1	1	1	1	1	1	1		
Rego Dark Brown R.DB	1	1	1	1	1	1	1	1	1	1
Calcareous Dark Brown CA.DB	1	1	1	1	1	1	1	1	1	1
Eluviated Dark Brown E.DB	1	1	1	1	1	1	1	1		
Solonetzic Dark Brown SZ.DB	1	1	1	1	1	1				
Gleyed Dark Brown GL.DB	1	1	1	1						
Gleyed Rego Dark Brown GLR.DB	1	1	1	1						
Gleyed Calcareous Dark Brown GLCA.DB	1	1	1	1						
Gleyed Eluviated Dark Brown GLE.DB	1	1	1	1						
Gleyed Solonetzic Dark Brown GLSZ.DB	1	1	1	1						

A	≤ 0.5	F	$>15, \leq 30$
B	$>0.5, \leq 2.5$	G	$>30, \leq 45$
C	$>2.5, \leq 5$	H	$>45, \leq 70$
D	$>5, \leq 10$	I	$>70, \leq 100$
E	$>10, \leq 15$	J	>100

TABLE 20 (Cont'd): SCLS78 vs SLOPE

Soil Classification	Slope Percent									
	A	B	C	D	E	F	G	H	I	J
Orthic Black O.BL	1	1	1	1	1	1	1			
Rego Black R.BL	1	1	1	1	1	1	1	1	1	1
Calcareous Black CA.BL	1	1	1	1	1	1	1	1	1	1
Eluviated Black E.BL	1	1	1	1	1	1	1	1		
Solonetzic Black SZ.BL	1	1	1	1	1					
Gleyed Black GL.BL	1	1	1	1						
Gleyed Rego Black GLR.BL	1	1	1	1						
Gleyed Calcareous Black GLCA.BL	1	1	1	1						
Gleyed Eluviated Black GLE.BL	1	1	1	1						
Gleyed Solonetzic Black GLSZ.BL	1	1	1	1						
Orthic Dark Gray O.DG	1	1	1	1	1	1	1	1		
Rego Dark Gray R.DG	1	1	1	1	1	1	1	1	1	1
Calcareous Dark Gray CA.DG	1	1	1	1	1	1	1			
Solonetzic Dark Gray SZ.DG	1	1	1	1						
Gleyed Dark Gray GL.DG	1	1	1	1						
Gleyed Rego Dark Gray GLR.DG	1	1	1	1						
Gleyed Calcareous Dark Gray GLCA.DG	1	1	1	1						
Gleyed Solonetzic Dark Gray GLSZ.DG	1	1	1	1						
Orthic Turbic Cryosol O.TC	1	1	1	1	1	1	1	1		
Brunisolic Turbic Cryosol BR.TC	1	1	1	1	1	1	1	1		
Regosolic Turbic Cryosol R.TC	1	1	1	1	1	1	1	1	1	1
Gleysolic Turbic Cryosol GL.TC	1	1	1	1	1	1	1			
Orthic Static Cryosol O.SC	1	1	1	1	1	1	1	1		
Brunisolic Static Cryosol BR.SC	1	1	1	1	1	1	1	1		
Regosolic Static Cryosol R.SC	1	1	1	1	1	1	1	1	1	1
Gleyosolic Static Cryosol GL.SC	1	1	1	1	1	1	1			
Fibric Organic Cryosol FI.OC	1	1	1	1	1					
Mesic Organic Cryosol ME.OC	1	1	1	1	1					
Humic Organic Cryosol HU.OC	1	1	1	1	1					
Terric Fibric Organic Cryosol TFI.OC	1	1	1	1	1					
Terric Mesic Organic Cryosol TME.OC	1	1	1	1	1					
Terric Humic Organic Cryosol THU.OC	1	1	1	1	1					
Glacic Organic Cryosol GC.OC	1	1	1	1	1					
Orthic Humic Gleysol O.HG	1	1	1	1						
Rego Humic Gleysol R.HG	1	1	1	1						
Fera Humic Gleysol FE.HG	1	1	1	1						

A	≤ 0.5	F	$>15, \leq 30$
B	$>0.5, \leq 2.5$	G	$>30, \leq 45$
C	$>2.5, \leq 5$	H	$>45, \leq 70$
D	$>5, \leq 10$	I	$>70, \leq 100$
E	$>10, \leq 15$	J	>100

TABLE 20 (Cont'd): SCLS78 vs SLOPE

Soil Classification	Slope Percent									
	A	B	C	D	E	F	G	H	I	J
Orthic Gleysol O.LG	1	1	1	1	1	1				
Rego Gleysol O.G	1	1	1	1	1	1				
Fera Gleysol FE.G GLR.B	1	1	1	1	1	1				
Orthic Luvic Gleysol O.LG	1	1	1	1	1					
Humic Luvic Gleysol HU.LG	1	1	1	1	1					
Fera Luvic Gleysol FE.LG	1	1	1	1	1					
Fragic Luvic Gleysol FR.LG	1	1	1	1	1					
Orthic Gray Brown Luvisol O.GBL	1	1	1	1	1	1	1	1		
Brunisolic Gray Brown Luvisol BR.GBL	1	1	1	1	1	1	1	1		
Podzolic Gray Brown Luvisol PZ.GBL	1	1	1	1	1	1	1	1		
Gleyed Gray Brown Luvisol GL.GBL	1	1	1	1	1	1				
Gleyed Brunisolic Gray Brown Luvisol GLBR.GBL	1	1	1	1	1	1				
Gleyed Podzolic Gray Brown Luvisol GLPZ.GBL	1	1	1	1	1	1				
Orthic Gray Luvisol O.GL	1	1	1	1	1	1	1	1		
Dark Gray Luvisol D.GL	1	1	1	1	1	1	1			
Brunisolic Gray Luvisol BR.GL	1	1	1	1	1	1	1			
Podzolic Gray Luvisol PZ.GL	1	1	1	1	1	1	1			
Solonetzic Gray Luvisol SZ.GL	1	1	1	1						
Fragic Gray Luvisol FR.GL	1	1	1	1	1	1	1	1		
Gleyed Gray Luvisol GL.GL	1	1	1	1	1	1				
Gleyed Dark Gray Luvisol GLD.GL	1	1	1	1	1	1				
Gleyed Brunisolic Gray Luvisol GLBR.GL	1	1	1	1	1	1				
Gleyed Podzolic Gray Luvisol GLPZ.GL	1	1	1	1	1	1				
Gleyed Solonetzic Gray Luvisol GLSZ.GL	1	1	1	1	1	1				
Gleyed Fragic Gray Luvisol GLFR.GL	1	1	1	1	1	1				
Typic Fibrisol TY.F	1	1	1	1	1					
Mesic Fibrisol ME.F	1	1	1	1	1					
Humic Fibrisol HU.F	1	1	1	1						
Limno Fibrisol LM.F	1	1	1	1						
Cumulo Fibrisol CU.F	1	1	1	1						
Terric Fibrosil T.F	1	1	1	1						
Terric Mesic Fibrisol TME.F	1	1	1	1						
Terric Humic Fibrisol THU.F	1	1	1	1						
Hydric Fibrisol HY.F	1	1	1	1						
Typic Mesisol TY.M	1	1	1	1	1					
Fibric Mesisol FI.M	1	1	1	1	1					
Humic Mesisol HU.M	1	1	1	1						
Limno Mesisol LM.M	1	1	1	1						

A	≤ 0.5	F	$>15, \leq 30$
B	$>0.5, \leq 2.5$	G	$>30, \leq 45$
C	$>2.5, \leq 5$	H	$>45, \leq 70$
D	$>5, \leq 10$	I	$>70, \leq 100$
E	$>10, \leq 15$	J	>100

TABLE 20 (Cont'd): SCLS78 vs SLOPE

Soil Classification	Slope Percent									
	A	B	C	D	E	F	G	H	I	J
Cumulo Mesisol CU.M	1	1	1	1						
Terric Mesisol T.M	1	1	1	1						
Terric Fibric Mesisol TFI.M	1	1	1	1						
Terric Humic Mesisol THU.M	1	1	1	1						
Hydric Mesisol HY.M	1	1	1	1						
Typic Humisol TY.H	1	1	1	1	1					
Fibric Humisol FI.H	1	1	1	1	1					
Mesic Humisol ME.H	1	1	1	1						
Limno Humisol LM.H	1	1	1	1						
Cumulo Humisol CU.H	1	1	1	1						
Terric Humisol T.H	1	1	1	1						
Terric Fibric Humisol TFI.H	1	1	1	1						
Terric Mesic Humisol TME.H	1	1	1	1						
Hydric Humisol HY.H	1	1	1	1						
Typic Folisol TY.FO	1	1	1	1	1	1	1	1	1	
Orthic Humic Podzol O.HP	1	1	1	1	1	1	1	1	1	
Orstein Humic Podzol OT.HP	1	1	1	1	1	1				
Placic Humic Podzol P.HP	1	1	1	1	1					
Duric Humic Podzol DU.GP	1	1	1	1	1	1	1	1		
Fragic Humic Podzol FR.HP	1	1	1	1	1	1	1	1		
Orthic Ferro-Humic Podzol O.FHP	1	1	1	1	1	1	1	1	1	
Orstein Ferro-Humic Podzol OT.FHP	1	1	1	1	1	1				
Placic Ferro-Humic Podzol P.FHP	1	1	1	1	1					
Duric Ferro-Humic Podzol DU.FHP	1	1	1	1	1	1	1	1		
Fragic Ferro-Humic Podzol FR.FHP	1	1	1	1	1	1	1	1		
Luvisolic Ferro-Humic Podzol LU.FHP	1	1	1	1	1	1	1	1		
Sombric Ferro-Humic Podzol SM.FHP	1	1	1	1	1	1	1	1	1	
Gleyed Ferro-Humic Podzol GL.FHP	1	1	1	1	1	1				
Gleyed Orstein Ferro-Humic Podzol GLOT.FHP	1	1	1	1	1	1				
Gleyed Sombric Ferro-Humic Podzol GLSM.FHP	1	1	1	1	1	1				
Orthic Humo-Ferric Podzol O.HFP	1	1	1	1	1	1	1	1	1	
Orstein Humo-Ferric Podzol OT.HFP	1	1	1	1	1	1				
Placic Humo-Ferric Podzol P.HFP	1	1	1	1	1					
Duric Humo-Ferric Podzol DU.HFP	1	1	1	1	1	1	1	1	1	
Fragic Humo-Ferric Podzol FR.HFP	1	1	1	1	1	1	1	1		
Luvisolic Humo-Ferric Podzol LU.HFP	1	1	1	1	1	1	1	1		
Sombric Humo-Ferric Podzol SM.HFP	1	1	1	1	1	1	1	1	1	
Gleyed Humo-Ferric Podzol GL.HFP	1	1	1	1	1	1				

A	<0.5	F	>15,<30
B	>0.5,<2.5	G	>30,<45
C	>2.5,<5	H	>45,<70
D	>5,<10	I	>70,<100
E	>10,<15	J	>100

TABLE 20 (Cont'd): SCLS78 vs SLOPE

Soil Classification	Slope Percent									
	A	B	C	D	E	F	G	H	I	J
Gleyed Orstein Humo-Ferric Podzol GLOT.HFP	1	1	1	1	1	1				
Gleyed Sombric Humo-Ferric Podzol GLSM.HFP	1	1	1	1	1	1				
Orthic Regosol O.R	1	1	1	1	1	1	1	1	1	
Cumulic Regosol CU.R	1	1	1	1	1	1	1	1	1	
Gleyed Regosol GL.R	1	1	1	1	1	1				
Gleyed Cumulic Regosol GLCU.R	1	1	1	1	1	1				
Orthic Humic Regosol O.HR	1	1	1	1	1	1	1	1	1	
Cumlic Humic Regosol CU.HR	1	1	1	1	1	1	1	1	1	
Gleyed Humic Regosol GL.HR	1	1	1	1	1	1				
Gleyed Cumulic Humic Regosol GLCU.HR	1	1	1	1	1	1				
Brown Solonetz B.SZ	1	1	1	1	1					
Dark Brown Solonetz DB.SZ	1	1	1	1	1					
Black Solonetz BL.SZ	1	1	1	1	1					
Alakaline Solonetz A.SZ	1	1	1	1	1					
Gleyed Brown Solonetz GLB.SZ	1	1	1	1	1					
Gleyed Dark Brown Solonetz GLDB.SZ	1	1	1	1	1					
Gleyed Black Solonetz GLBL.SZ	1	1	1	1	1					
Brown Solodized Solonetz B.SS	1	1	1	1	1					
Dark Brown Solodized Solonetz DB.SS	1	1	1	1	1					
Black Solodized Solonetz BL.SS	1	1	1	1	1					
Dark Gray Solidized Solonetz DG.SS	1	1	1	1	1					
Gray Solodized Solonetz G.SS	1	1	1	1	1					
Gleyed Brown Solodized Solonetz GLB.SS	1	1	1	1	1					
Gleyed Dark Brown Solodized Solonetz GLDB.SS	1	1	1	1	1					
Gleyed Black Solodized Solonetz GLBL.SS	1	1	1	1	1					
Gleyed Dark Gray Solodized Solonetz GLDG.SS	1	1	1	1	1					
Gleyed Gray Solodized Solonetz GLG.SS	1	1	1	1	1					
Brown Solod B.SO	1	1	1	1	1					
Dark Brown Solod DB.SO	1	1	1	1	1					
Black Solod BL.SO	1	1	1	1	1					
Dark Gray Solod DG.SO	1	1	1	1	1					
Gray Solod G.SO	1	1	1	1	1					
Gleyed Brown Solod GLB.SO	1	1	1	1	1					
Gleyed Dark Brown Solod GLDB.SO	1	1	1	1	1					
Gleyed Black Solod GLBL.SO	1	1	1	1	1					
Gleyed Dark Gray Solod GLDG.SO	1	1	1	1	1					
Gleyed Gray Solod GLG.SO	1	1	1	1	1					

A	≤ 0.5	F	$>15, \leq 30$
B	$>0.5, \leq 2.5$	G	$>30, \leq 45$
C	$>2.5, \leq 5$	H	$>45, \leq 70$
D	$>5, \leq 10$	I	$>70, \leq 100$
E	$>10, \leq 15$	J	>100

TABLE 21: SCLS78 vs SOILDRNG

Soil Classification	Soil Drainage					
	A	B	C	D	E	F
Orthic Melanic Brunisol O.MB	1	1	1			
Eluviated Melanic Brunisol E.M.B	1	1	1			
Gleyed Melanic Brunisol GL.MB				1	1	
Gleyed Eluviated Melanic Brunisol GLE.MB				1	1	
Orthic Eutric Brunisol O.EB	1	1	1			
Eluviated Eutric Brunisol E.EB	1	1	1			
Gleyed Eutric Brunisol GL.EB				1	1	
Gleyed Eluviated Eutric Brunisol GLE.EB				1	1	
Orthic Sombric Brunisol O.SB	1	1	1			
Eluviated Sombric Brunisol E.SB	1	1	1			
Duric Sombric Brunisol DU.SB	1	1	1	1	1	
Gleyed Sombric Brunisol GL.SB				1	1	
Gleyed Eluviated Sombric Brunisol GLE.SB				1	1	
Orthic Dystric Brunisol O.DYB	1	1	1			
Eluviated Dystric Brunisol E.DYB	1	1	1			
Duric Dystric Brunisol DU.DYB	1	1	1	1	1	
Gleyed Dystric Brunisol GL.DYB				1	1	
Gleyed Eluviated Dystric Brunisol GLE.DYB				1	1	
Orthic Brown O.B	1	1	1			
Rego Brown R.B	1	1	1			
Calcareous Brown CA.B	1	1	1			
Eluviated Brown E.B		1	1			
Solonetzic Brown SZ.B		1	1			
Gleyed Brown GL.B				1	1	
Gleyed Rego Brown GLR.B				1	1	
Gleyed Calcareous Brown GLCA.B				1	1	
Gleyed Eluviated Brown GLE.B				1	1	
Gleyed Solonetzic Brown GLSZ.B				1	1	
Orthic Dark Brown O.DB	1	1	1			
Rego Dark Brown R.DB	1	1	1			
Calcareous Dark Brown CA.DB	1	1	1			
Eluviated Dark Brown E.DB		1	1			
Solonetzic Dark Brown SZ.DB		1	1			
Gleyed Dark Brown GL.DB				1	1	
Gleyed Rego Dark Brown GLR.DB				1	1	
Gleyed Calcareous Dark Brown GLCA.DB				1	1	
Gleyed Eluviated Dark Brown GLE.DB				1	1	
Gleyed Solonetzic Dark Brown GLSZ.DB				1	1	

TABLE 21 (Cont'd): SCLS78 vs SOILDRNG

Soil Classification	Soil Drainage					
	A	B	C	D	E	F
Orthic Black O.BL		1	1			
Rego Black R.BL		1	1			
Calcareous Black CA.BL		1	1			
Eluviated Black E.BL		1	1			
Solonetzic Black SZ.BL		1	1			
Gleyed Black GL.BL				1	1	
Gleyed Rego Black GLR.BL				1	1	
Gleyed Calcareous Black GLCA.BL				1	1	
Gleyed Eluviated Black GLE.BL				1	1	
Gleyed Solonetzic Black GLSZ.BL				1	1	
Orthic Dark Gray O.DG		1	1			
Rego Dark Gray R.DG		1	1			
Calcareous Dark Gray CA.DG		1	1			
Solonetzic Dark Gray SZ.DG		1	1			
Gleyed Dark Gray GL.DG				1	1	
Gleyed Rego Dark Gray GLR.DG				1	1	
Gleyed Calcareous Dark Gray GLCA.DG				1	1	
Gleyed Solonetzic Dark Gray GLSZ.DG				1	1	
Orthic Turbic Cryosol O.TC			1	1		
Brunisolic Turbic Cryosol BR.TC		1	1	1		
Regosolic Turbic Cryosol R.TC		1	1	1		
Gleysolic Turbic Cryosol GL.TC					1	1
Orthic Static Cryosol O.SC		1	1	1		
Brunisolic Static Cryosol BR.SC		1	1	1		
Regosolic Static Cryosol R.SC		1	1	1		
Gleyosolic Static Cryosol GL.SC					1	1
Fibric Organic Cryosol FI.OC					1	1
Mesic Organic Cryosol ME.OC					1	1
Humic Organic Cryosol HU.OC					1	1
Terric Fibric Organic Cryosol TFI.OC					1	1
Terric Mesic Organic Cryosol TME.OC					1	1
Terric Humic Organic Cryosol THU.OC					1	1
Glacic Organic Cryosol GC.OC					1	1
Orthic Humic Gleysol O.HG					1	1
Rego Humic Gleysol R.HG					1	1
Fera Humic Gleysol FE.HG					1	1
Orthic Gleysol O.LG					1	1
Rego Gleysol O.G					1	1
Fera Gleysol FE.G GLR.B					1	1

TABLE 21 (Cont'd): SCLS78 vs SOILDRNG

Soil Classification	Soil Drainage					
	A	B	C	D	E	F
Orthic Luvic Gleysol O.LG					1	1
Humic Luvic Gleysol HU.LG					1	1
Fera Luvic Gleysol FE.LG					1	1
Fragic Luvic Gleysol FR.LG					1	1
Orthic Gray Brown Luvisol O.GBL		1	1			
Brunisolic Gray Brown Luvisol BR.GBL		1	1			
Podzolic Gray Brown Luvisol PZ.GBL		1	1			
Gleyed Gray Brown Luvisol GL.GBL				1	1	
Gleyed Brunisolic Gray Brown Luvisol GLBR.GBL				1	1	
Gleyed Podzolic Gray Brown Luvisol GLPZ.GBL				1	1	
Orthic Gray Luvisol O.GL		1	1			
Dark Gray Luvisol D.GL		1	1			
Brunisolic Gray Luvisol BR.GL		1	1			
Podzolic Gray Luvisol PZ.GL		1	1			
Solonetzic Gray Luvisol SZ.GL		1	1			
Fragic Gray Luvisol FR.GL		1	1			
Gleyed Gray Luvisol GL.GL				1	1	
Gleyed Dark Gray Luvisol GLD.GL				1	1	
Gleyed Brunisolic Gray Luvisol GLBR.GL				1	1	
Gleyed Podzolic Gray Luvisol GLPZ.GL				1	1	
Gleyed Solonetzic Gray Luvisol GLSZ.GL				1	1	
Gleyed Fragic Gray Luvisol GLFR.GL				1	1	
Typic Fibrisol TY.F				1	1	1
Mesic Fibrisol ME.F					1	1
Humic Fibrisol HU.F					1	1
Limno Fibrisol LM.F					1	1
Cumulo Fibrisol CU.F					1	1
Terric Fibrosil T.F					1	1
Terric Mesic Fibrisol TME.F					1	1
Terric Humic Fibrisol THU.F					1	1
Hydric Fibrisol HY.F					1	1
Typic Mesisol TY.M					1	1
Fibric Mesisol FI.M					1	1
Humic Mesisol HU.M					1	1
Limno Mesisol LM.M					1	1
Cumulo Mesisol CU.M					1	1
Terric Mesisol T.M					1	1
Terric Fibric Mesisol TFI.M					1	1
Terric Humic Mesisol THU.M					1	1
Hydric Mesisol HY.M					1	1

TABLE 21 (Cont'd): SCLS78 vs SOILDRNG

Soil Classification	Soil Drainage					
	A	B	C	D	E	F
Typic Humisol TY.H					1	1
Fibric Humisol FI.H					1	1
Mesic Humisol ME.H					1	1
Limno Humisol LM.H					1	1
Cumulo Humisol CU.H					1	1
Terric Humisol T.H					1	1
Terric Fibric Humisol TFI.H					1	1
Terric Mesic Humisol TME.H					1	1
Hydric Humisol HY.H					1	1
Typic Folisol TY.FO	1	1	1	1		
Orthic Humic Podzol O.HP		1	1	1		
Orstein Humic Podzol OT.HP		1	1	1		
Placic Humic Podzol P.HP			1	1	1	
Duric Humic Podzol DU.GP			1	1		
Fragic Humic Podzol FR.HP			1	1		
Orthic Ferro-Humic Podzol O.FHP		1	1			
Orstein Ferro-Humic Podzol OT.FHP		1	1			
Placic Ferro-Humic Podzol P.FHP		1	1	1	1	
Duric Ferro-Humic Podzol DU.FHP		1	1	1		
Fragic Ferro-Humic Podzol FR.FHP		1	1	1		
Luvisolic Ferro-Humic Podzol LU.FHP		1	1	1		
Sombric Ferro-Humic Podzol SM.FHP		1	1			
Gleyed Ferro-Humic Podzol GL.FHP				1	1	
Gleyed Orstein Ferro-Humic Podzol GLOT.FHP				1	1	
Gleyed Sombric Ferro-Humic Podzol GLSM.FHP				1	1	
Orthic Humo-Ferric Podzol O.HFP	1	1	1			
Orstein Humo-Ferric Podzol OT.HFP	1	1	1			
Placic Humo-Ferric Podzol P.HFP	1	1	1	1	1	
Duric Humo-Ferric Podzol DU.HFP	1	1	1	1		
Fragic Humo-Ferric Podzol FR.HFP	1	1	1	1		
Luvisolic Humo-Ferric Podzol LU.HFP	1	1	1	1		
Sombric Humo-Ferric Podzol SM.HFP	1	1	1			
Gleyed Humo-Ferric Podzol GL.HFP				1	1	
Gleyed Orstein Humo-Ferric Podzol GLOT.HFP				1	1	
Gleyed Sombric Humo-Ferric Podzol GLSM.HFP				1	1	
Orthic Regosol O.R	1	1	1			
Cumulic Regosol CU.R	1	1	1			
Gleyed Regosol GL.R				1	1	
Gleyed Cumulic Regosol GLCU.R				1	1	

TABLE 21 (Cont'd): SCLS78 vs SOILDRNG

Soil Classification	Soil Drainage					
	A	B	C	D	E	F
Orthic Humic Regosol O.HR	1	1	1			
Cumlic Humic Regosol CU.HR	1	1	1			
Gleyed Humic Regosol GL.HR				1	1	
Gleyed Cumulic Humic Regosol GLCU.HR				1	1	
Brown Solonetz B.SZ		1	1			
Dark Brown Solonetz DB.SZ		1	1			
Black Solonetz BL.SZ		1	1			
Alakaline Solonetz A.SZ		1	1	1		
Gleyed Brown Solonetz GLB.SZ				1	1	
Gleyed Dark Brown Solonetz GLDB.SZ				1	1	
Gleyed Black Solonetz GLBL.SZ				1	1	
Brown Solodized Solonetz B.SS		1	1			
Dark Brown Solodized Solonetz DB.SS		1	1			
Black Solodized Solonetz BL.SS		1	1			
Dark Gray Solidized Solonetz DG.SS		1	1			
Gray Solodized Solonetz G.SS		1	1			
Gleyed Brown Solodized Solonetz GLB.SS				1	1	
Gleyed Dark Brown Solodized Solonetz GLDB.SS				1	1	
Gleyed Black Solodized Solonetz GLBL.SS				1	1	
Gleyed Dark Gray Solodized Solonetz GLDG.SS				1	1	
Gleyed Gray Solodized Solonetz GLG.SS				1	1	
Brown Solod B.SO		1	1			
Dark Brown Solod DB.SO		1	1			
Black Solod BL.SO		1	1			
Dark Gray Solod DG.SO		1	1			
Gray Solod G.SO		1	1			
Gleyed Brown Solod GLB.SO				1	1	
Gleyed Dark Brown Solod GLDB.SO				1	1	
Gleyed Black Solod GLBL.SO				1	1	
Gleyed Dark Gray Solod GLDG.SO				1	1	
Gleyed Gray Solod GLG.SO				1	1	

TABLE 22: SCLS78 vs SLMSTSUB

Soil Classification	Soil Moisture Subclass									
	A	B	C	D	E	F	G	H	I	J
Orthic Melanic Brunisol O.MB				1	1	1	1			
Eluviated Melanic Brunisol E.MB					1	1	1			
Gleyed Melanic Brunisol GL.MB								1		
Gleyed Eluviated Melanic Brunisol GLE.MB								1		
Orthic Eutric Brunisol O.EB				1	1	1	1			
Eluviated Eutric Brunisol E.EB					1	1	1			
Gleyed Eutric Brunisol GL.EB								1		
Gleyed Eluviated Eutric Brunisol GLE.EB								1		
Orthic Sombric Brunisol O.SB				1	1	1	1			
Eluviated Sombric Brunisol E.SB					1	1	1			
Duric Sombric Brunisol DU.SB					1	1	1	1		
Gleyed Sombric Brunisol GL.SB								1		
Gleyed Eluviated Sombric Brunisol GLE.SB								1		
Orthic Dystric Brunisol O.DYB				1	1	1	1			
Eluviated Dystric Brunisol E.DYB					1	1	1			
Duric Dystric Brunisol DU.DYB					1	1	1	1		
Gleyed Dystric Brunisol GL.DYB								1		
Gleyed Eluviated Dystric Brunisol GLE.DYB								1		
Orthic Brown O.B			1	1						
Rego Brown R.B			1	1						
Calcareous Brown CA.B			1	1						
Eluviated Brown E.B			1	1						
Solonetzic Brown SZ.B			1	1						
Gleyed Brown GL.B								1		
Gleyed Rego Brown GLR.B								1		
Gleyed Calcareous Brown GLCA.B								1		
Gleyed Eluviated Brown GLE.B								1		
Gleyed Solonetzic Brown GLSZ.B								1		
Orthic Dark Brown O.DB			1	1	1					
Rego Dark Brown R.DB			1	1	1					
Calcareous Dark Brown CA.DB			1	1	1					
Eluviated Dark Brown E.DB			1	1	1					
Solonetzic Dark Brown SZ.DB			1	1	1					
Gleyed Dark Brown GL.DB								1		
Gleyed Rego Dark Brown GLR.DB								1		
Gleyed Calcareous Dark Brown GLCA.DB								1		
Gleyed Eluviated Dark Brown GLE.DB								1		
Gleyed Solonetzic Dark Brown GLSZ.DB								1		

TABLE 22 (Cont'd): SCLS78 vs SLMSTSUB

Soil Classification	Soil Moisture Subclass									
	A	B	C	D	E	F	G	H	I	J
Orthic Black O.BL				1	1					
Rego Black R.BL				1	1					
Calcareous Black CA.BL				1	1					
Eluviated Black E.BL				1	1					
Solonetzic Black SZ.BL				1	1					
Gleyed Black GL.BL							1	1		
Gleyed Rego Black GLR.BL							1	1		
Gleyed Calcareous Black GLCA.BL							1	1		
Gleyed Eluviated Black GLE.BL							1	1		
Gleyed Solonetzic Black GLSZ.BL							1	1		
Orthic Dark Gray O.DG				1	1					
Rego Dark Gray R.DG				1	1					
Calcareous Dark Gray CA.DG				1	1					
Solonetzic Dark Gray SZ.DG				1	1					
Gleyed Dark Gray GL.DG							1	1		
Gleyed Rego Dark Gray GLR.DG							1	1		
Gleyed Calcareous Dark Gray GLCA.DG							1	1		
Gleyed Solonetzic Dark Gray GLSZ.DG							1	1		
Orthic Turbic Cryosol O.TC						1	1	1		
Brunisolic Turbic Cryosol BR.TC						1	1	1		
Regosolic Turbic Cryosol R.TC						1	1	1		
Gleysolic Turbic Cryosol GL.TC							1	1	1	1
Orthic Static Cryosol O.SC						1	1	1		
Brunisolic Static Cryosol BR.SC						1	1	1		
Regosolic Static Cryosol R.SC						1	1	1		
Gleyosolic Static Cryosol GL.SC							1	1	1	1
Fibric Organic Cryosol FI.OC									1	1
Mesic Organic Cryosol ME.OC									1	1
Humic Organic Cryosol HU.OC									1	1
Terric Fibric Organic Cryosol TFI.OC									1	1
Terric Mesic Organic Cryosol TME.OC									1	1
Terric Humic Organic Cryosol THU.OC									1	1
Glacic Organic Cryosol GC.OC									1	1
Orthic Humic Gleysol O.HG								1	1	1
Rego Humic Gleysol R.HG								1	1	1
Fera Humic Gleysol FE.HG								1	1	1
Orthic Gleysol O.LG								1	1	1
Rego Gleysol O.G								1	1	1
Fera Gleysol FE.G GLR.B								1	1	1

TABLE 22 (Cont'd): SCLS78 vs SLMSTSUB

Soil Classification	Soil Moisture Subclass									
	A	B	C	D	E	F	G	H	I	J
Orthic Luvic Gleysol O.LG								1	1	1
Humic Luvic Gleysol HU.LG								1	1	1
Fera Luvic Gleysol FE.LG								1	1	1
Fragic Luvic Gleysol FR.LG								1	1	1
Orthic Gray Brown Luvisol O.GBL					1	1				
Brunisolic Gray Brown Luvisol BR.GBL					1	1				
Podzolic Gray Brown Luvisol PZ.GBL					1	1				
Gleyed Gray Brown Luvisol GL.GBL							1	1		
Gleyed Brunisolic Gray Brown Luvisol GLBR.GBL							1	1		
Gleyed Podzolic Gray Brown Luvisol GLPZ.GBL							1	1		
Orthic Gray Luvisol O.GL					1	1	1			
Dark Gray Luvisol D.GL					1	1	1			
Brunisolic Gray Luvisol BR.GL					1	1	1			
Podzolic Gray Luvisol PZ.GL					1	1	1			
Solonetzic Gray Luvisol SZ.GL					1	1	1			
Fragic Gray Luvisol FR.GL					1	1	1			
Gleyed Gray Luvisol GL.GL							1	1		
Gleyed Dark Gray Luvisol GLD.GL							1	1		
Gleyed Brunisolic Gray Luvisol GLBR.GL							1	1		
Gleyed Podzolic Gray Luvisol GLPZ.GL							1	1		
Gleyed Solonetzic Gray Luvisol GLSZ.GL							1	1		
Gleyed Fragic Gray Luvisol GLFR.GL							1	1		
Typic Fibrisol TY.F									1	1
Mesic Fibrisol ME.F									1	1
Humic Fibrisol HU.F									1	1
Limno Fibrisol LM.F									1	1
Cumulo Fibrisol CU.F									1	1
Terric Fibrosil T.F									1	1
Terric Mesic Fibrisol TME.F									1	1
Terric Humic Fibrisol THU.F									1	1
Hydric Fibrisol HY.F										1
Typic Mesisol TY.M									1	1
Fibric Mesisol FI.M									1	1
Humic Mesisol HU.M									1	1
Limno Mesisol LM.M									1	1
Cumulo Mesisol CU.M									1	1
Terric Mesisol T.M									1	1
Terric Fibric Mesisol TFI.M									1	1
Terric Humic Mesisol THU.M									1	1
Hydric Mesisol HY.M										1

TABLE 22 (Cont'd): SCLS78 vs SLMSTSUB

Soil Classification	Soil Moisture Subclass									
	A	B	C	D	E	F	G	H	I	J
Typic Humisol TY.H									1	1
Fibric Humisol FI.H									1	1
Mesic Humisol ME.H									1	1
Limno Humisol LM.H									1	1
Cumulo Humisol CU.H									1	1
Terric Humisol T.H									1	1
Terric Fibric Humisol TFI.H									1	1
Terric Mesic Humisol TME.H									1	1
Hydric Humisol HY.H										1
Typic Folisol TY.FO				1	1	1	1			
Orthic Humic Podzol O.HP							1	1		
Orstein Humic Podzol OT.HP							1	1		
Placic Humic Podzol P.HP							1	1		
Duric Humic Podzol DU.GP							1	1		
Fragic Humic Podzol FR.HP							1	1		
Orthic Ferro-Humic Podzol O.FHP						1	1			
Orstein Ferro-Humic Podzol OT.FHP						1	1			
Placic Ferro-Humic Podzol P.FHP						1	1	1		
Duric Ferro-Humic Podzol DU.FHP						1	1	1		
Fragic Ferro-Humic Podzol FR.FHP						1	1	1		
Luvisolic Ferro-Humic Podzol LU.FHP						1	1	1		
Sombric Ferro-Humic Podzol SM.FHP						1	1			
Gleyed Ferro-Humic Podzol GL.FHP							1	1		
Gleyed Orstein Ferro-Humic Podzol GLOT.FHP							1	1		
Gleyed Sombric Ferro-Humic Podzol GLSM.FHP							1	1		
Orthic Humo-Ferric Podzol O.HFP					1	1	1			
Orstein Humo-Ferric Podzol OT.HFP					1	1	1			
Placic Humo-Ferric Podzol P.HFP					1	1	1	1		
Duric Humo-Ferric Podzol DU.HFP					1	1	1	1		
Fragic Humo-Ferric Podzol FR.HFP					1	1	1	1		
Luvisolic Humo-Ferric Podzol LU.HFP					1	1	1	1		
Sombric Humo-Ferric Podzol SM.HFP					1	1	1			
Gleyed Humo-Ferric Podzol GL.HFP							1	1		
Gleyed Orstein Humo-Ferric Podzol GLOT.HFP							1	1		
Gleyed Sombric Humo-Ferric Podzol GLSM.HFP							1	1		
Orthic Regosol O.R		1	1	1	1	1	1			
Cumulic Regosol CU.R				1	1	1	1			
Gleyed Regosol GL.R							1	1		
Gleyed Cumulic Regosol GLCU.R							1	1		

TABLE 22 (Cont'd): SCLS78 vs SLMSTSUB

Soil Classification	Soil Moisture Subclass									
	A	B	C	D	E	F	G	H	I	J
Orthic Humic Regosol O.HR		1	1	1	1	1	1			
Cumlic Humic Regosol CU.HR				1	1	1	1			
Gleyed Humic Regosol GL.HR							1	1		
Gleyed Cumulic Humic Regosol GLCU.HR							1	1		
Brown Solonetz B.SZ		1	1	1						
Dark Brown Solonetz DB.SZ		1	1	1						
Black Solonetz BL.SZ		1	1	1	1					
Alakaline Solonetz A.SZ		1	1	1						
Gleyed Brown Solonetz GLB.SZ							1	1		
Gleyed Dark Brown Solonetz GLDB.SZ							1	1		
Gleyed Black Solonetz GLBL.SZ							1	1		
Brown Solodized Solonetz B.SS		1	1	1						
Dark Brown Solodized Solonetz DB.SS		1	1	1						
Black Solodized Solonetz BL.SS			1	1	1					
Dark Gray Solidized Solonetz DG.SS			1	1	1					
Gray Solodized Solonetz G.SS			1	1	1					
Gleyed Brown Solodized Solonetz GLB.SS							1	1		
Gleyed Dark Brown Solodized Solonetz GLDB.SS							1	1		
Gleyed Black Solodized Solonetz GLBL.SS							1	1		
Gleyed Dark Gray Solodized Solonetz GLDG.SS							1	1		
Gleyed Gray Solodized Solonetz GLG.SS							1	1		
Brown Solod B.SO		1	1	1						
Dark Brown Solod DB.SO		1	1	1	1					
Black Solod BL.SO			1	1	1					
Dark Gray Solod DG.SO			1	1	1					
Gray Solod G.SO				1	1					
Gleyed Brown Solod GLB.SO							1	1		
Gleyed Dark Brown Solod GLDB.SO							1	1		
Gleyed Black Solod GLBL.SO							1	1		
Gleyed Dark Gray Solod GLDG.SO							1	1		
Gleyed Gray Solod GLG.SO							1	1		

TABLE 23: SCLS78 vs SLTMPCLS

Soil Classification	Soil Temperature Class				
	A	B	C	D	E
Orthic Melanic Brunisol O.MB		1	1	1	1
Eluviated Melanic Brunisol E.MB		1	1	1	1
Gleyed Melanic Brunisol GL.MB		1	1	1	1
Gleyed Eluviated Melanic Brunisol GLE.MB		1	1	1	1
Orthic Eutric Brunisol O.EB		1	1	1	1
Eluviated Eutric Brunisol E.EB		1	1	1	1
Gleyed Eutric Brunisol GL.EB		1	1	1	1
Gleyed Eluviated Eutric Brunisol GLE.EB		1	1	1	1
Orthic Sombric Brunisol O.SB		1	1	1	1
Eluviated Sombric Brunisol E.SB		1	1	1	1
Duric Sombric Brunisol DU.SB		1	1	1	1
Gleyed Sombric Brunisol GL.SB		1	1	1	1
Gleyed Eluviated Sombric Brunisol GLE.SB		1	1	1	1
Orthic Dystric Brunisol O.DYB		1	1	1	1
Eluviated Dystric Brunisol E.DYB		1	1	1	1
Duric Dystric Brunisol DU.DYB		1	1	1	1
Gleyed Dystric Brunisol GL.DYB		1	1	1	1
Gleyed Eluviated Dystric Brunisol GLE.DYB		1	1	1	1
Orthic Brown O.B			1	1	1
Rego Brown R.B			1	1	1
Calcareous Brown CA.B			1	1	1
Eluviated Brown E.B			1	1	1
Solonetzic Brown SZ.B			1	1	1
Gleyed Brown GL.B			1	1	1
Gleyed Rego Brown GLR.B			1	1	1
Gleyed Calcareous Brown GLCA.B			1	1	1
Gleyed Eluviated Brown GLE.B			1	1	1
Gleyed Solonetzic Brown GLSZ.B			1	1	1
Orthic Dark Brown O.DB			1	1	1
Rego Dark Brown R.DB			1	1	1
Calcareous Dark Brown CA.DB			1	1	1
Eluviated Dark Brown E.DB			1	1	1
Solonetzic Dark Brown SZ.DB			1	1	1
Gleyed Dark Brown GL.DB			1	1	1
Gleyed Rego Dark Brown GLR.DB			1	1	1
Gleyed Calcareous Dark Brown GLCA.DB			1	1	1
Gleyed Eluviated Dark Brown GLE.DB			1	1	1
Gleyed Solonetzic Dark Brown GLSZ.DB			1	1	1

TABLE 23 (Cont'd): SCLS78 vs SLTMPCLS

Soil Classification	Soil Temperature Class				
	A	B	C	D	E
Orthic Black O.BL			1	1	
Rego Black R.BL			1	1	
Calcareous Black CA.BL			1	1	
Eluviated Black E.BL			1	1	
Solonetzic Black SZ.BL			1	1	
Gleyed Black GL.BL			1	1	
Gleyed Rego Black GLR.BL			1	1	
Gleyed Calcareous Black GLCA.BL			1	1	
Gleyed Eluviated Black GLE.BL			1	1	
Gleyed Solonetzic Black GLSZ.BL			1	1	
Orthic Dark Gray O.DG			1	1	
Rego Dark Gray R.DG			1	1	
Calcareous Dark Gray CA.DG			1	1	
Solonetzic Dark Gray SZ.DG			1	1	
Gleyed Dark Gray GL.DG			1	1	
Gleyed Rego Dark Gray GLR.DG			1	1	
Gleyed Calcareous Dark Gray GLCA.DG			1	1	
Gleyed Solonetzic Dark Gray GLSZ.DG			1	1	
Orthic Turbic Cryosol O.TC	1	1			
Brunisolic Turbic Cryosol BR.TC	1	1			
Regosolic Turbic Cryosol R.TC	1	1			
Gleysolic Turbic Cryosol GL.TC	1	1			
Orthic Static Cryosol O.SC	1	1			
Brunisolic Static Cryosol BR.SC	1	1			
Regosolic Static Cryosol R.SC	1	1			
Gleyosolic Static Cryosol GL.SC	1	1			
Fibric Organic Cryosol FI.OC	1	1			
Mesic Organic Cryosol ME.OC	1	1			
Humic Organic Cryosol HU.OC	1	1			
Terric Fibric Organic Cryosol TFI.OC	1	1			
Terric Mesic Organic Cryosol TME.OC	1	1			
Terric Humic Organic Cryosol THU.OC	1	1			
Glacic Organic Cryosol GC.OC	1	1			
Orthic Humic Gleysol O.HG		1	1	1	1
Rego Humic Gleysol R.HG		1	1	1	1
Fera Humic Gleysol FE.HG		1	1	1	1
Orthic Gleysol O.LG		1	1	1	1
Rego Gleysol O.G		1	1	1	1
Fera Gleysol FE.G GLR.B		1	1	1	1

TABLE 23 (Cont'd): SCLS78 vs SLTMPCLS

Soil Classification	Soil Temperature Class				
	A	B	C	D	E
Orthic Luvic Gleysol O.LG		1	1	1	1
Humic Luvic Gleysol HU.LG		1	1	1	1
Fera Luvic Gleysol FE.LG		1	1	1	1
Fragic Luvic Gleysol FR.LG		1	1	1	1
Orthic Gray Brown Luvisol O.GBL					1
Brunisolic Gray Brown Luvisol BR.GBL					1
Podzolic Gray Brown Luvisol PZ.GBL					1
Gleyed Gray Brown Luvisol GL.GBL					1
Gleyed Brunisolic Gray Brown Luvisol GLBR.GBL					1
Gleyed Podzolic Gray Brown Luvisol GLPZ.GBL					1
Orthic Gray Luvisol O.GL			1	1	
Dark Gray Luvisol D.GL			1	1	
Brunisolic Gray Luvisol BR.GL		1	1	1	
Podzolic Gray Luvisol PZ.GL		1	1	1	
Solonetzic Gray Luvisol SZ.GL			1	1	
Fragic Gray Luvisol FR.GL			1	1	
Gleyed Gray Luvisol GL.GL			1	1	
Gleyed Dark Gray Luvisol GLD.GL			1	1	
Gleyed Brunisolic Gray Luvisol GLBR.GL		1	1	1	
Gleyed Podzolic Gray Luvisol GLPZ.GL		1	1	1	
Gleyed Solonetzic Gray Luvisol GLSZ.GL			1	1	
Gleyed Fragic Gray Luvisol GLFR.GL			1	1	
Typic Fibrisol TY.F		1	1	1	1
Mesic Fibrisol ME.F		1	1	1	1
Humic Fibrisol HU.F		1	1	1	1
Limno Fibrisol LM.F		1	1	1	1
Cumulo Fibrisol CU.F		1	1	1	1
Terric Fibrosil T.F		1	1	1	1
Terric Mesic Fibrisol TME.F		1	1	1	1
Terric Humic Fibrisol THU.F		1	1	1	1
Hydric Fibrisol HY.F		1	1	1	1
Typic Mesisol TY.M		1	1	1	1
Fibric Mesisol FI.M		1	1	1	1
Humic Mesisol HU.M		1	1	1	1
Limno Mesisol LM.M		1	1	1	1
Cumulo Mesisol CU.M		1	1	1	1
Terric Mesisol T.M		1	1	1	1
Terric Fibric Mesisol TFI.M		1	1	1	1
Terric Humic Mesisol THU.M		1	1	1	1
Hydric Mesisol HY.M		1	1	1	1

TABLE 23 (Cont'd): SCLS78 vs SLTMPCLS

Soil Classification	Soil Temperature Class				
	A	B	C	D	E
Typic Humisol TY.H		1	1	1	1
Fibric Humisol FI.H		1	1	1	1
Mesic Humisol ME.H		1	1	1	1
Limno Humisol LM.H		1	1	1	1
Cumulo Humisol CU.H		1	1	1	1
Terric Humisol T.H		1	1	1	1
Terric Fibric Humisol TFI.H		1	1	1	1
Terric Mesic Humisol TME.H		1	1	1	1
Hydric Humisol HY.H		1	1	1	1
Typic Folisol TY.FO		1	1	1	
Orthic Humic Podzol O.HP		1	1	1	
Orstein Humic Podzol OT.HP		1	1	1	
Placic Humic Podzol P.HP		1	1	1	
Duric Humic Podzol DU.GP		1	1	1	
Fragic Humic Podzol FR.HP		1	1	1	
Orthic Ferro-Humic Podzol O.FHP		1	1	1	
Orstein Ferro-Humic Podzol OT.FHP		1	1	1	
Placic Ferro-Humic Podzol P.FHP		1	1	1	
Duric Ferro-Humic Podzol DU.FHP		1	1	1	
Fragic Ferro-Humic Podzol FR.FHP		1	1	1	
Luvisolic Ferro-Humic Podzol LU.FHP		1	1	1	
Sombric Ferro-Humic Podzol SM.FHP		1	1	1	
Gleyed Ferro-Humic Podzol GL.FHP		1	1	1	
Gleyed Orstein Ferro-Humic Podzol GLOT.FHP		1	1	1	
Gleyed Sombric Ferro-Humic Podzol GLSM.FHP		1	1	1	
Orthic Humo-Ferric Podzol O.HFP		1	1	1	
Orstein Humo-Ferric Podzol OT.HFP		1	1	1	
Placic Humo-Ferric Podzol P.HFP		1	1	1	
Duric Humo-Ferric Podzol DU.HFP		1	1	1	
Fragic Humo-Ferric Podzol FR.HFP		1	1	1	
Luvisolic Humo-Ferric Podzol LU.HFP		1	1	1	
Sombric Humo-Ferric Podzol SM.HFP		1	1	1	
Gleyed Humo-Ferric Podzol GL.HFP		1	1	1	
Gleyed Orstein Humo-Ferric Podzol GLOT.HFP		1	1	1	
Gleyed Sombric Humo-Ferric Podzol GLSM.HFP		1	1	1	
Orthic Regosol O.R		1	1	1	1
Cumulic Regosol CU.R		1	1	1	1
Gleyed Regosol GL.R		1	1	1	1
Gleyed Cumulic Regosol GLCU.R		1	1	1	1

TABLE 23 (Cont'd): SCLS78 vs SLTMPCLS

Soil Classification	Soil Temperature Class				
	A	B	C	D	E
Orthic Humic Regosol O.HR		1	1	1	1
Cumlic Humic Regosol CU.HR		1	1	1	1
Gleyed Humic Regosol GL.HR		1	1	1	1
Gleyed Cumulic Humic Regosol GLCU.HR		1	1	1	1
Brown Solonetz B.SZ			1	1	
Dark Brown Solonetz DB.SZ			1	1	
Black Solonetz BL.SZ			1	1	
Alakaline Solonetz A.SZ			1	1	
Gleyed Brown Solonetz GLB.SZ			1	1	
Gleyed Dark Brown Solonetz GLDB.SZ			1	1	
Gleyed Black Solonetz GLBL.SZ			1	1	
Brown Solodized Solonetz B.SS			1	1	
Dark Brown Solodized Solonetz DB.SS			1	1	
Black Solodized Solonetz BL.SS			1	1	
Dark Gray Solidized Solonetz DG.SS			1	1	
Gray Solodized Solonetz G.SS			1	1	
Gleyed Brown Solodized Solonetz GLB.SS			1	1	
Gleyed Dark Brown Solodized Solonetz GLDB.SS			1	1	
Gleyed Black Solodized Solonetz GLBL.SS			1	1	
Gleyed Dark Gray Solodized Solonetz GLDG.SS			1	1	
Gleyed Gray Solodized Solonetz GLG.SS			1	1	
Brown Solod B.SO			1	1	
Dark Brown Solod DB.SO			1	1	
Black Solod BL.SO			1	1	
Dark Gray Solod DG.SO			1	1	
Gray Solod G.SO			1	1	
Gleyed Brown Solod GLB.SO			1	1	
Gleyed Dark Brown Solod GLDB.SO			1	1	
Gleyed Black Solod GLBL.SO			1	1	
Gleyed Dark Gray Solod GLDG.SO			1	1	
Gleyed Gray Solod GLG.SO			1	1	

TABLE 24: SLMSTSUB vs SOILDRNG

Site Moisture Subclass	Soil Drainage					
	A	B	C	D	E	F
A	1					
B	1	1				
C	1	1				
D	1	1	1			
E	1	1	1			
F	1	1	1	1		
G		1	1	1		
H				1	1	
I					1	1
J						1

TABLE 25: SOILTEXT vs CONSDRY, SOILTEXT vs CONSMST, SOILTEXT vs CONSWET, SOILTEXT vs CONSPLST

Soil Texture	Consistence (Four Independent Tables)																								
	Dry							Moist							Wet					Plasticity			
	1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3	4	1	2	3	4
S	1							1						1				1			
CS	1							1						1				1			
MS	1							1						1				1			
FS	1							1						1				1			
VFS	1							1						1				1			
LS	1	1	1					1	1					1	1			1			
LCS	1	1	1					1	1					1	1			1			
LMS	1	1	1					1	1					1	1			1			
LFS	1	1	1					1	1					1	1			1			
LVFS	1	1	1					1	1					1	1			1			
SL		1	1						1	1	1	1		1	1	1		1	1		
CSL		1	1						1	1	1	1		1	1	1		1	1		
MSL		1	1						1	1	1	1		1	1	1		1	1		
FSL		1	1						1	1	1	1		1	1	1		1	1		
VFSL		1	1						1	1	1	1		1	1	1		1	1		
L		1	1	1					1	1	1	1		1	1	1		1	1	1	
SIL		1	1	1					1	1	1	1		1	1	1		1	1	1	
SI		1	1						1	1	1	1		1	1			1	1		
SCL			1	1	1	1				1	1	1			1	1	1		1	1	
CL			1	1	1	1				1	1	1				1	1			1	1
SICL			1	1	1					1	1	1				1	1			1	1
SC				1	1	1	1				1	1	1				1			1	1
SIC				1	1	1					1	1					1			1	1
C				1	1	1	1				1	1	1				1			1	1
HC					1	1	1					1	1				1				1

TABLE 26: SOILTEXT vs SCFPS1/2

Soil Texture	Family Particle Size*																		
	VFC	FC	C	FSI	CSI	FL	CL	L	S	CS	LS	SS	F	CI	A	T	AS	TS	G
S									1			1	1	1	1		1		
CS									1			1	1	1	1		1		
MS									1			1	1	1	1		1		
FS									1			1	1	1	1		1		
VFS									1			1	1	1	1		1		
LS									1			1	1	1	1		1		
LCS									1			1	1	1	1		1		
LMS									1			1	1	1	1		1		
LFS									1			1	1	1	1		1		
LVFS									1			1	1	1	1		1		
SL						1	1	1			1			1	1		1		
CSL						1	1	1			1			1	1		1		
MSL						1	1	1			1			1	1		1		
FSL						1	1	1			1			1	1		1		
VFSL						1	1	1			1			1	1		1		
L						1	1	1			1			1	1		1		
SIL				1	1	1	1	1			1				1		1		
SI							1	1		1	1				1		1		
SCL						1		1			1							1	1
CL		1	1			1		1		1	1					1			1
SICL		1	1	1		1		1		1	1					1			1
SC		1	1							1						1		1	1
SIC		1	1							1						1			1
C		1	1							1						1			1
HC	1		1							1						1			1

* Soil texture should be tested against both entries for Family Particle Size; a value of '1' need occur on only one of these tests.

TABLE 27: SOILTEXT vs STRCKND1

Soil Texture	Structure-Primary-Kind								
	SGR	MA	ABK	SBK	GR	PL	PR	COL	CDY
S	1	1							
CS	1								
MS	1	1							
FS	1	1	1	1	1	1			
VFS	1	1	1	1	1	1			
LS	1	1	1	1	1				
LCS	1	1		1	1				
LMS	1	1	1	1	1				
LFS	1	1	1	1	1				
LVFS	1	1	1	1	1				1
SL	1	1	1	1	1	1			1
CSL	1	1	1	1	1	1			1
MSL	1	1	1	1	1	1			1
FSL		1	1	1	1	1			1
VFSL		1	1	1	1	1			1
L		1	1	1	1	1	1	1	1
SIL		1	1	1	1	1	1	1	1
SI		1	1	1	1	1			1
SCL		1	1	1	1	1	1	1	1
CL		1	1	1	1	1	1	1	1
SICL		1	1	1	1	1	1	1	1
SC		1	1	1		1	1	1	1
SIC		1	1	1		1	1	1	1
C		1	1	1		1	1	1	1
HC		1	1	1		1	1	1	1

TABLE 28: SOILTEXT vs LABSLTXT

Soil Texture	Texture (Lab Determined)																								
	S	CS	MS	FS	VFS	LS	LCS	LMS	LFS	LVFS	SL	CSL	MSL	FSL	VFSL	L	SIL	SI	SCL	CL	SICL	SC	SIC	C	HC
S	1	1	1	1	1																				
CS	1	1																							
MS	1		1																						
FS	1			1																					
VFS	1				1																				
LS						1	1	1	1	1															
LCS						1	1																		
LMS						1		1																	
LFS						1			1																
LVFS						1				1															
SL											1	1	1	1	1										
CSL											1	1													
MSL											1		1												
FSL											1			1											
VFSL											1				1										
L																1									
SIL																	1								
SI																		1							
SCL																			1						
CL																				1					
SICL																					1				
SC																						1			
SIC																							1		
C																								1	
HC																									1

TABLE 29: STRSRF11, STRSRF12, STRSRF13 (All for Stratum 1) vs STPOSMES

Terrain Surface Expression	Site Position Meso						
	A	B	C	D	E	F	G
A				1	1		
B	1	1	1	1	1		
F				1	1		
H	1	1	1	1	1	1	
L	1				1	1	1
M	1	1	1	1	1	1	1
R	1	1	1	1	1		
S	1	1	1	1			
T					1		1
V	1	1	1	1	1		1

TABLE 30: STRTXT1 (for Stratum 1) vs PERV

Terrain Texture	Perviousness		
	A	B	C
C			1
I		1	1
S	1	1	
P	1		
K	1		
B	1		
F		1	1
G	1		
R	1		
A	1		
E, xE, Ex;x≠M or H	1	1	
M,xM,Mx;x≠H	1	1	1
H,xH,Hx		1	1
C$,$C		1	1
CS,SC		1	1
CP,PC		1	1
CK,KC		1	1
CB,BC		1	1
CF,FC		1	1
CG,GC		1	1
CR,RC		1	1
CA.AC		1	1
S,S		1	1
P,P	1	1	
K,K	1	1	
B,B	1	1	
F,F		1	1
G,G	1	1	
R,R	1	1	
A,A	1	1	
SP,PS	1	1	
SK,KS	1	1	
SB,BS	1	1	
SF,FS		1	1
SG,GS	1	1	
SR,RS	1	1	
SA,AS	1		
PK,KP	1		
PB,BP	1		
PF,FP		1	1
PG,GP	1		
PR,RP	1		
PA,AP	1		

TABLE 30 (Cont'd): STRTXT1 (for Stratum 1) vs PERV

Terrain Texture	Perviousness		
	A	B	C
KB,BK	1		
KF,FK		1	1
KG,GK	1		
KR,RK	1		
KA,AK	1		
BF,FB		1	1
BG,GB	1		
BR,RB	1		
BA,AB	1		
FG,GF		1	1
FR,RF		1	1
FA,AF		1	1
GR,RG	1		
GA,AG	1		
RA,AR	1		

TABLE 31: ORMATVNP vs HDESMSTS

Von Post Scale	Type of O Organic Master Horizon If Master Horizon is O and corresponding Suffix is: F	M	H
1	1		
2	1		
3	1		
4	1		
5		1	
6		1	
7			1
8			1
9			1
10			1

Horizon Validation - Conditions and Definitions

In the material which follows all double number (x.y) statements represent allowable conditions. In Sections 1. and 2. the conditions are entirely independent of one another. In Section 3. and 4. a set of conditions is listed for each Suffix.

If there is insufficient information to evaluate a condition, assume the condition is met, unless otherwise stated.

The structure of this material is that of independent conditions and definitions. It does not classify a Master Horizon or Suffix. Instead it tells:

(i) what Master Horizons and Suffixes are allowable;
(ii) what combinations of Master Horizons and Suffixes are allowable;
(iii) what the conditions are for a given Suffix (sometimes in conjuction with a specific Master Horizon);
(iv) what the conditions are for the various Mottle Contrasts.

Output of this material should be as follows:
If all Master Horizons and Suffixes appear correct, state -
ALL MASTER HORIZONS AND SUFFIXES APPEAR CORRECT.
If certain Master Horizons and/or Suffixes appear incorrect, state -
ERROR: Parent Material Discontinuity - Master Horizon - Suffixes: STATEMENT(s) VIOLATED: x.y, etc.
The Surveyors will be supplied with all specifications, and consequently, they will be able to decipher the numbers.

Horizon Validation

1. Master Horizons

1.1 Master Horizon designations must be one of the following:
O,L,F,H,LF,FL,LH,HL,FH,HF,LFH,LHF,FLH,FHL,HLF,HFL,
A,B,C,AB,BC,BA,CB,AC,CA
A&B, B&A, A&C, C&A, B&C, C&B,
D1 through D20, W, R. ASH

1.2 All Organic Master Horizons * must contain > 17% Organic Carbon.

1.3 All Mineral Master Horizons ** must contain ≤ 17% Organic Carbon.

---

* Organic Master Horizons include O,L,F,H,LF,FL,LH,HL,FH,HF,LFH,LHF,FLH,FHL,HLF,HFL.

** Mineral Master Horizons include A,B,C,AB,BC,BA,CB,AC,CA,
A&B,B&A,A&C,C&A,B&C,C&B, and ASH, only.

2. Suffixes

2.1 The following are allowable suffixes, subject to certain restrictions;
CA,CC,CO,SA,EJ,TJ,FJ,NJ,GF,GJ,
C, S, E, T, F, N, G, H,
B, K, M, P, U, X, Y, Z,

2.2 CA not allowed with Organic Master Horizons.

2.3 CO allowed only with O Master Horizon.

2.4 E and EJ allowed only with A Master Horizon.

2.5 F allowed only with B or O Master Horizon.

2.6 FJ allowed only with B Master Horizon.

2.7 GF allowed only with B Master Horizon.

2.8 H allowed only with A, B, or O Master Horizon.

2.9 HF allowed only with B Master Horizon.

2.10 M allowed only with B or O Master Horizon.

2.11 M allowed only by itself or with one of the following suffixes: B,GJ,K,S,W,Y,Z. Combinations of M with other Suffixes not allowed.

2.12 N allowed only with B Master Horizon.

2.13 P allowed only with A or O Master Horizon.

2.14 T and TJ allowed only with B Master Horizon.

2.15 The sequence EH is not allowed. (The sequence HE is allowed).

2.16 The sequences FT and TF are not allowed.

2.17 The sequences GH, HG, GP and PG are not allowed.

2.18 The sequence TN is not allowed. (The sequences NT and TNJ are allowed).

2.19 When U is used with A or B Master Horizons, at least one other suffix must be present.

2.20 With either an A, a B, or an O Master Horizon, there must be at least one Suffix.

2.21 With either a BC or C Master Horizon the only permissable Suffixes are: G,GJ,C,CA,K,S,SA,U,Y,Z.

3. Specific Suffix Restrictions - Mineral Horizons

All conditions for a given Suffix must be met if the Suffix is to be considered correct.

CA:

3.1 (a) Thickness * of the Master Horizon > 10 cm;

3.2 (b) if $CaCO_3$ Equivalent of Master Horizon < 15%, then $CaCO_3$ Equivalent of Master Horizon $\geq$ 5.0 + that of first C Master Horizon below it, assuming that these two Master Horizons have the same Parent Material Discontinuity designation.

3.3 (c) if $CaCO_3$ Equivalent of Master Horizon $\geq$ 15%, then $CaCO_3$ Equivalent of Master Horizon $\geq$ 1.33 x that of first C Master Horizon below it, assuming that these two Master Horizons have the same Parent Material Discontinuity designation.

F: (excluding the Suffixes GF, HF, and FJ; including sequence FG; and with Master Horizon BO:

3.4 (a) Organic Carbon > 0.5% and $\leq$ 5.0 %, and

3.5 (b) Pyrophosphate Fe + Pyrophosphate Al $\geq$ 0.6 if Field Texture is not S, CS, MS, FS, or VFS, or Pyrophosphate Fe + Pyrophosphate Al $\geq$ 0.4 if Field Texture is S, CS, MS, FS, or VFS, and 3.6

(c) ratio of Pyrophosphate Fe + Pyrophosphate Al to % Total Clay > 0.05, and

3.7 (d) Pyrophosphate Fe $\geq$ 0.3, or Organic Carbon < 20 x Pyrophosphate Fe.

3.8 (e) if Aspect of Colour 1 is 7, Value of Colour 1 $\leq$ 3, or Chroma of Colour 1 > 3.

G: (excluding Suffix GJ; and with Master Horizon A or C):

3.9 (a) Colour 1 Chroma $\leq$ 1.0, and
Colour 1 Aspect = 1 or 2 or 3 or 4, OR
Colour 1 Chroma $\leq$ 2.0, and
Alpha part of Colour 1 Hue = YR, and
Colour 1 Aspect = 1 or 2 or 3 or 4, and
Mottle Contrast = P, and
Mottle Abundance $\neq$ F, OR
Colour 1 Chroma $\leq$ 3.0, and
Alpha part of Colour 1 Hue = Y, and
Colour 1 Aspect = 1 or 2 or 3 or 4, and
Mottle Contrast = P, and
Mottle Abundance $\neq$ F, OR
Alpha part of Colour 1 Hue = GY or G or BG or B, and
Colour 1 Aspect = 1 or 2 or 3 or 4.

---

* Thickness of a Master Horizon = absolute value of (Horizon Lower Boundary - Horizon Upper Boundary)

G: (excluding Suffix GJ; and with Master Horizon B or BC):

3.10 (a) as in G-(a) above (3.9)

3.11 (b) at least one of the Structure Primary or Structure Secondary fields must differ from the corresponding value of the first C Master Horizon below it, when the B and this C Master Horizon have the same Parent Material Discontinuity designation. This condition is assumed to be true if all these fields have been left blank for both horizons; otherwise, blanks are treated as legitimate values in all comparisons.

GF: (not to be confused with Suffixes FG; and with Master Horizon B):

3.12 (a) Dithionite Fe $\geq$ 1.0 + Dithionite Fe of the first C Master Horizon, when the B and this C Master Horizon have the same Parent Material Discontinuity designation.

3.13 (b) Statement F-(b) above (3.5) is False.

H: (including Suffixes HE; and with Master Horizon A):

3.14 (a) (Value of Colour 1) + 1.0 $\leq$ Value of Colour 1 of Master Horizon directly below, or

Organic Carbon - 0.5 $\geq$ Organic Carbon of the first C Master Horizon, when the A and this C Master Horizon have the same Parent Material Discontinuity designation.

H: (with Master Horizon B):

3.15 (a) Organic Carbon > 1.0, and

3.16 (b) Pyrophosphate Fe < 0.3, and

3.17 (c) Organic Carbon $\geq$ 20.0 x Pyrophosphate Fe.

HF: (with Master Horizon B):

3.18 (a) Organic Carbon > 5.0

3.19 (b) as in F-(b) above (3.5)

3.20 (c) as in F-(c) above (3.6)

3.21 (d) as in F-(d) above (3.7)

3.22 (e) as in F-(e) above (3.8)

M: (with Master Horizon B):

3.23 (a) at least one of the Colour 1, Colour 2, Mottles, Structure Primary, or Structure Secondary fields must differ from the corresponding value of the first C Master Horizon below it, when the B and this C Master Horizon have the same Parent Material Discontinuity designation. This condition is assumed to be true if all these fields have been left blank for both horizons; otherwise, blanks are treated as legitimate values in all comparisons.

N: (excluding Suffix NJ; and with Master Horizon B):

3.24 (a) Exchangeble Cations Ca $\leq$ 10 x Exchangeable Cations Na.

3.25 (b) Primary Structure Kind Is either PR or COL.

3.26 (c) Consistence Dry is either 4 or 5 or 6 or 7.

SA:

3.27 (a) Electrical Conductivity $\geq$ 4.

3.28 (b) Electrical Conductivity of B Master Horizon x 0.75 $\geq$ Electrical Conductivity of the first C Master Horizon below it, when the B and this C Master Horizon have the same Parent Material Discontinuity designations.

3.29 (c) the thickness of the B Master Horizon $\geq$ 10.

T: (excluding Suffix TJ; and with Master Horizon B):

3.30 (a) if there exists an A Master Horizon above the B Master Horizon, (if more than 1 A Master Horizon, then choose the closest), and if the B and this A Master Horizon have the same Parent Material Discontinuity designation, then one of the following must be true:

(i) if the % Total Clay of the A Master Horizon < 15%, then % of Total Clay of the A Master Horizon + 3.0 $\leq$ % Total Clay of the B Master Horizon, OR

(ii) if the % Total Clay of the A Master Horizon $\geq$ 15% and $\leq$ 40%, then Total Clay of the B Master Horizon $\geq$ 1.2, x % Total clay of the A Master Horizon, OR,

(iii) if the % Total Clay of the A Master Horizon > 40%, then % Total Clay of the A Master Horizon + 8.0 $\leq$ % of Total Clay of the B Master Horizon.

3.31 (b) the thickness of the B Master Horizon $\geq$ 5.

3.32 (c) if Structure Primary Kind is MA, then Clay Films Location is $\geq$ 2 and $\leq$ 5.

3.33 (d) Clay Films Frequency is F, C, M or CS.

4. <u>Specific Suffix Restrictions - Organic Horizons</u>
All conditions for a given Suffix must be met if the Suffix is to be considered correct.

F: (with Master Horizon O):

4.1 (a) % Fibre Rubbed $\geq$ 40;

4.2 (b) if % Fibre Rubbed < 75, then the Pyrophosphate Index (Lab) $\geq$ 5.

4.3 (c) if % Fibre Rubbed < 75, then the Pyrophosphate Index (Field) $\geq$ 5.

H: (with Master Horizon O)

4.4 (a) % Fibre Rubbed < 10,

4.5 (b) the Pyrophosphate Index (Lab) $\leq$ 3.

4.6 (c) the Pyrophosphate Index (Field) $\leq$ 3.

M: (with Master Horizon O)

4.7 (a) % Fibre Rubbed $\geq$ 10 and < 40,

4.8 (b) the Pyrophosphate Index (Lab) $\geq$ 3 and $\leq$ 5.

4.9 (c) the Pyrophosphate Index (Field) $\geq$ 3 and $\leq$ 5.

5. <u>Mottle Contrast Definitions</u>

Let = Absolute Value of (Colour 1 Hue Code* - Mottle Colour Hue Code*)
Let = Absolute Value of (Colour 1 Value - Mottle Colour Value)
Let = Absolute Value of (Colour 1 Chroma - Mottle Colour Chroma)

5.1 F: <2.5, and, <1, and <1
5.2 D: (≥2.5, or, ≥1, or, ≥1,) and, (<5, and, <3, and, <3)
5.3 P: ≥5, or, ≥3, or, ≥3

* <u>Hue Code</u> : <u>for Colour 1 Hue & for Mottle Colour Hue</u>
If Alpha part of Hue is R, Hue Code = 0
If Alpha part of Hue is YR, Hue Code = numeric part of Hue
If Alpha part of Hue is Y , Hue Code = 10 + numeric part of Hue
If Alpha part of Hue is GY, Hue Code = 17.5
If Alpha part of Hue is G , hue Code = 20
If Alpha part of Hue is BG, Hue Code = 22.5
If Alpha part of Hue is B , Hue Code = 25
If Alpha part of either Colour 1 Hue or Mottle Colour Hue is N,
Hue Code for each Colour = numeric part of Hue for that Colour.

Pedon Validation - A Hierarchical/Sequential Key

In the material which follows, three types of statements exist:

(i) Logical Statements - triple numbered (x.y.z) and with values of either true or false;

(ii) Definitions - specific terms used in Logical Statements;

(iii) If Statements - based primarily on Logical Statements; for classifying, for directing to other parts of the key, and for indicating appropriate output.

The following rules are to be used when data may be missing:

(i) If a particular Master Horizon or Suffix is specified in a Logical Statement, and if the Master Horizon or Suffix cannot be found assume it does not exist.

(ii) Otherwise, if there is insufficient information to evaluate a Logical Statement (or a portion of a logical statement), then assume that the Logical Statement is true (or that the condition contained in the portion of the Logical Statement is met).

(iii) The above statement does not hold should an If Statement(s) be given which provides for the possibility that a Logical Statement may not be answerable because of insufficient information.

The structure of the key is hierarchical with three levels: Order, Great Group, and Subgroup. Within each of these levels, the key is sequential. The key classifies the soil down to the Subgroup level. Comparison is then made between the Soil Classification designation of the surveyor and that obtained by this program. Output is discussed in Section 4.

1. <u>Pedon Validation - to Order Level - Sequential Key</u>

1.1 Cryosolic Order

1.1.1 There exists at least one Master Horizon with a Z Suffix and with a Horizon Upper Boundary $\leq$ 100,

1.1.2 There exists at least one Master Horizon with a Z Suffix and with a Horizon Upper Boundary $\leq$ 200, and with at least one Master Horizon above it with a Y Suffix.

If (1.1.1 or 1.1.2) soil is in Cryosolic Order (.TC or .SC or .OC) go to 2.3.
If (not 1.1.1 and not 1.1.2) go to 1.2.

1.2 Organic Order

1.2.1 Every Master Horizon with a Horizon Upper Boundary < 60 is an O.

1.2.2 Every Master Horizon with a Horizon Upper Boundary < 40 is an O and of these horizons, the sum of thicknesses of those with an F suffix is less than the sum of thicknesses of those with an M suffix and less than the sum of thicknesses of those with an H suffix.

1.2.3 There exists an R Master Horizon, with a Horizon Upper Boundary < 40, and with the sum of the thicknesses of all O Master Horizons $\geq$ 10, and with the sum of the thicknesses of all Mineral Master Horizons < 10, and with the former sum > 2 times the latter sum.

1.2.4 α < 40, and
$\beta \geq 40$, where
α = the sum of thicknesses of all Mineral Master Horizons whose Horizon Upper Boundary is < the Horizon Upper Boundary of the first O Master Horizon, and
β = the sum of thicknesses of all O Master Horizons whose Horizon Upper Boundary is $\geq$ the Horizon Upper Boundary of the first O Master Horizon.

1.2.5 There exists a Mineral Master Horizon, with a Horizon Upper Boundary $\leq$ 40 and with $\alpha+\beta>40$ where
α = sum of thicknesses of all O Master Horizons whose Horizon Lower Boundaries are $\leq$ 80;
β = zero if there is no O Master Horizon whose Horizon Upper Boundary < 80 and whose Horizon Lower Boundary > 80;
β = (80 - Horizon Upper Boundary) where the Horizon Upper Boundary refers to that of an O Master Horizon whose Horizon Upper Boundary < 80 and whose Horizon Lower Boundary >80.

1.2.6 Each and every Master Horizon is one of the following: L,F,H,LF,FL,LH,HL,FH,HF,LFH,LHF,FLH,FHL,HLF,HFL,C,or R, and the sum of the thicknesses of all L,F,H,LF,FL,LH,HL,FH,HF,LFH,LHF,FLH,FHL,HLF,and HFL Horizons is $\geq$10, and for all C Master horizons both of the following conditions are false:

Family Particle Size $\neq$ F,

Coarse Fragment % by Vol. < 90.

1.2.7 The sum of the thicknesses of all Mineral Master Horizons is < 10, and this sum < 0.5 times the sum of the thicknesses of all L, F, H, LF,FL,LH,HL,FH,HF,LFH,LHF,FLH,FHL,HLF, and HFL Horizons.

If (1.2.1 or 1.2.2 or 1.2.3 or 1.2.4 or 1.2.5 or 1.2.6 or 1.2.7) Soil is in Organic Order (.F or .M or .H or .FO) go to 2.6.

If (not 1.2.1 and not 1.2.2 and not 1.2.3 and not 1.2.4 and not 1.2.5 and not 1.2.6 and not 1.2.7) go to 1.3.

1.3 Podzolic Order

1.3.1 There does not exist a B Master Horizon with a T Suffix (TJ Suffix not ok), and with a Horizon Upper Boundary $\leq$ 50 cm.

1.3.2 There exists a B Master Horizon with either an H, and HF, or an F Suffix (FJ Suffix not ok), and with all of the following properties:

(a) thickness $\geq$ 10 cm, nd

(b) Field Texture $\neq$ HC or C, and

(c) if Aspect of Colour 1 is 7, then EITHER Alpha code of Colour is YR or R and Value of Colour 1 < 3 or Chroma of Colour 1 > 3, OR Colour 1 is 2.5Y 2/0 or 5Y 2.5/1 or 5Y 2.5/2.

If (1.3.1 and 1.3.2) soil is in Podzolic Order (.HP or .FHP or HFP). go to 2.7.

If (not 1.3.1 or not 1.3.2) go to 1.4.

1.4 Gleysolic Order

1.4.1 There exists at least one Master Horizon with a Horizon Upper Boundary $\leq$ 50 and with a G or a GF Suffix (FG and GJ Suffix not ok).

If (1.4.1) soil is in Gleysolic Order (.HG or .G or .LG). go to 2.4.

If (not 1.4.1) go to 1.5.

1.5 Solonetzic Order

1.5.1 There exists a B Master Horizon with an N Suffix (NT Suffixes ok; NJ Suffix not ok).

If (1.5.1) soil is in Solonetzic Order (.SZ or .SS or .SO. go to 2.9.

If (not 1.5.1) go to 1.6.

1.6 Chernozemic Order

1.6.1 There exists an A Master Horizon with all of the following properties:

(a) thickness $\geq$ 10 cm;

(b) if the Colour 1 Aspect is 1 or 3 or 5 or 7 then the Colour 1 Chroma < 3.5 and Colour 1 Value < 3.5;

(c) if the Colour 1 Aspect is 2 or 4 or 6 or 8 then the Colour 1 Value < 5.5;

(d) if the Colour 1 Aspect is the same as that of the first C Master Horizon, and if the Parent Material Discontinuity of these two Master Horizons are equal, then the A Master Horizon Colour 1 Value $\geq$ 1.0 + the C Master Horizon Colour 1 Values;

(e) Organic Carbon $\geq$ 1.0;

(f) ratio of Organic Carbon to Nitrogen < 17

(g) ratio of (sum of Exchangeable Cations: Ca+Mg+Na+K) to (CEC determined buffered) >.8;

(h) Soil Moisture Subclass ≠ F or G or H or I or J;

(i) Soil Temperature Class ≠ A.

1.6.2 At least one of the following four statements is true:

(a) There does not exist an A Master Horizon with an E Suffix (EJ Suffix not ok);

(b) There exists an A Master Horizon with an EJ Suffix and if the Colour 1 Aspect is 2 or 4 or 6 or 8, the Colour 1 Value < 5;

(c) There exists an A Master Horizon with an H or a P Suffix and There exists another A Master Horizon with an E Suffix, such that the Horizon Upper Boundary of the former < the Horizon Upper Boundary of the latter, and such that the thickness of the former > the thickness of the latter;

(d) The Master Horizon recognized in 1.6.1 has the following two suffizes: H and E (EJ not ok); and there exists another A Master Horizon with an E Suffix (EJ Suffix not ok), and a thickness < 5.

If (1.6.1 and 1.6.2) soil is in Chernozenic Order (.B or .DB or .BL or .DG). go to 2.2

If (not 1.6.1 or not 1.6.2) go to 1.7.

1.7 Luvisolic Order
1.7.1 There exists a B Master Horizon
with a T Suffix (TJ Suffix not ok)
If (1.7.1) soil is in Luvisolic Order (.GBL or .GL). go to 2.5.
If (not 1.71.) go to 1.8.

1.8 Brunisolic Order
1.8.1 There exists a B Master Horizon
with a thickness $\geq$ 5.
If (1.8.1) soil is in Brunisolic Order (.MB or .EB or .SB or .DYB). go to 2.1.
If (not 1.8.1) go to 1.9.

1.9 Regosolic Order
1.9.1 The sum of the thicknesses of all Mineral Master Horizons is $\geq$ 10.
If (1.9.1) soil is in Regosolic Order (.R or .HR). go to 2.8.

1.10 Non-Soil
If this stage is reached, the taxonomic classification should be blank,
as the material does not officially qualify as a soil. go to 4.

2. <u>Pedon Validation - to Great Group Level - Sequential Key</u>

2.1 Brunisolic Order

2.1.1 There exists an A Master Horizon
with an H Suffix, and
with a thickness > 10.

2.1.2 There exists an A Master Horizon
with a P Suffix, and
with a thickness > 10 and
if Colour 1 Aspect = 1 or 3 or 5 or 7, Colour 1 Value <4.

2.1.3 There exists a B Master Horizon
with a thickness > 5 and
with a Horizon Upper Boundary < 25 + Horizon Upper Boundary of first, i.e. uppermost, B Master Horizon, and
with a pH-CaCl2 value > 5.5.

If ((2.1.1 or 2.1.2) and 2.1.3) soil is Melanic Brunisol (.MB). go to 3.1

If (2.1.3) soil is Eutric Brunisol (.EB). go to 3.2

If ((2.1.1 or 2.1.2) and not 2.1.3) soil is Sombric Brunisol (.SB). go to 3.3

If (not 2.1.3) soil is Dystric Brunisol (.DB). go to 3.4.

If ((2.1.1 or 2.1.2) with 2.1.3 not answerable soil is Melanic Brunisol or Sombric Brunisol.
If Great Group designated is one of these (.MB or .SB), assume it is correct and go to 3.1 or 3.3, respectively. If it is not one of these, it is wrong. - FLAG & STOP.

If (not (2.1.1 or 2.1.2) with 2.1.3 not answerable) soil is Eutric Brunisol or Dystric Brunisol.
If Great Group designated is one of these (.EB or .DB) assume it is correct and go to 3.2 or 3.4, respectively. If it is not one of these, it is wrong. - FLAG & STOP.

2.2 Chernozemic Order

The following nine Statements concern the A Master Horizon recognized in 1.6.1.

2.2.1 There exists an E Suffix.

2.2.2 There exists a P Suffix.

2.2.3 If the Colour 1 Aspect is 1 or 3 or 5 or 7, then the Colour 1 Chroma < 1.5.

2.2.4 If the Colour 1 Aspect is 1 or 3 or 5 or 7, then the Colour 1 Chroma > 1.5.

2.2.5 If the Colour 1 Aspect is 2 or 4 or 6 or 8, then the Colour 1 Value ≥ 4.5 and ≤ 5.5.

2.2.6 If the Colour 1 Aspect is 2 or 4 or 6 or 8, then the Colour 1 Value ≥ 3.5 and ≤ 4.5.

2.2.7 If the Colour 1 Aspect is 2 or 4 or 6 or 8, then the Colour 1 Value < 3.5.

2.2.8 If the Colour 1 Aspect is 2 or 4 or 6 or 8, then the Colour 1 Value < 4.5.

2.2.9 If the Colour 1 Aspect is 2 or 4 or 6 or 8, then the Colour 1 Value < 5.0.

2.2.10 The Soil Moisture Subclass is C.

2.2.11 The Soil Moisture Subclass is D.

2.2.12 The Soil Moisutre Subclass is E.

If ((2.2.4 and 2.2.5) and 2.2.10) Soil is Brown Chernozem (.B) go to 3.5.
If (2.2.5 and 2.2.11) Soil is Brown Chernozem (.B) go to 3.5.
If (2.2.6 and 2.2.11) Soil is Dark Brown Chernozem (.DB). go to 3.6.
If (2.2.4 and 2.2.11) Soil is Brown or Dark Brown (.B or DB). go to 3.5 or 3.6, respectively.
If not one of these,
it is wrong. - Flag and Stop.
If (2.2.7 and 2.2.12) Soil is Black Chernozem (.BL). go to 3.7.
If ((2.2.3 or ((not 2.2.7) and 2.2.8)) and (2.2.1 or (2.2.2 and 2.2.9))) Soil is Dark Grey Chernozem (.DG). go to 3.8.
If insufficient information to classify by any of the above, assume Great Group designation is correct.
Proceed to 3.5 or 3.6 or 3.7 or 3.8, according to whether designation is .B or .DB or .BL or .DG, respectively.

2.3 Cryosolic Order

2.3.1 Excluding all L, F, H, LF, LH, FH, and LFH Master Horizons, the first Master Horizon is an O Master Horizon with one of the following three properties:

(a) thickness > 40 cm;
(b) thickness > 10 cm and R Master Horizon is next Master Horizon below;
(c) thickness > 10 cm and W Master Horizon is next Master Horizon below, and if the thickness of this W Horizon ≥ 30 cm, or has no Horizon Lower Boundary specified, or is the lowest Horizon given.

2.3.2 There exists a Mineral Master Horizon with a Y Suffix.

If (2.3.1) Soil is Organic Cryosol (.OC). go to 3.11.
If (2.3.2) Soil is Turbic Cryosol (.TC). go to 3.9.
Soil is Static Cryosol (.SC). go to 3.10.

2.4 Gleysolic Order

2.4.1 There exists a B Master Horizon with a T Suffix.

2.4.2 There exists an A Master Horizon with an H Suffix and with thickness $\geq$ 10.

2.4.3 There exists an A Master Horizon with the following five properties:

(a) P Suffix,

(b) thickness $\geq$ 15,

(c) organic carbon > 2,

(d) if Colour 1 Aspect = 1 or 3 or 5 or 7, Colour 1 Value $\leq$ 3.5.
if Colour 1 Aspect = 2 or 4 or 6 or 8, Colour 1 Value $\leq$ 5.0.

(e) if the Colour 1 Aspect = 1 or 3 or 5 or 7 and
if for the underlying Master Horizon Colour 1 Aspect = 1 or 3 or 5 or 7,
then one of the following:
if the underlying Master Horizon Colour 1 Value $\geq$ 4,
the Horizon Colour 1 Value + 1.5 $\leq$ underlying Horizon Colour 1 Value;
if the underlying Master Horizon Colour 1 Value < 4,
the Horizon Colour 1 Value + 1.0 $\leq$ underlying Horizon Colour 1 Value.

If (2.4.1) Soil is Luvic Gleysol (.LG). go to 3.14.
If (2.4.2 or 2.4.3) Soil is Humic Gleysol (.HG). go to 3.12.
Soil is Gleysol (.G). go to 3.13.

2.5 Luvisolic Order

2.5.1 Soil Temperature Class = E,

If (2.5.1) Soil is Gray Grown Luvisol (.GBL). go to 3.15.
If (not 2.5.1) Soil is Gray Luvisol (.GL) go to 3.16
If (2.5.1 not answerable) assume Great Group designation is correct as given and if .GBL go to 3.15 and if .GL go to 3.16.

2.6 Organic Order

The following definitions are required.

For a given O Master Horizon, let

α = (the smaller of: 120, Horizon Lower Boundary) - (the larger of: 40, Horizon Upper Boundary)

If $\alpha < 0$, reset $\alpha = 0$.

Calculate α for every O Master Horizon with an F, M, or H Suffix.

Let:

$F\alpha$ = Sum of all α values for all O Master Horizons with an F Suffix.

$M\alpha$ = Sum of all α values for all O Master Horizons with an M Suffix.

$H\alpha$ = Sum of all α values for all O Master Horizons with an H Suffix.

For a given O Master Horizon, let

β = (the smaller of: 160, Horizon Lower Boundary) - (the larger of: 40, Horizon Upper Boundary)

If $\beta < 0$, reset $\beta=0$.

Let:

$F\beta$ = Sum of all β values for all O Master Horizons with an F Suffix.

$M\beta$ = Sum of all β values for all O Master Horizons with an M Suffix.

$H\beta$ = Sum of all β values for all O Master Horizons with an H Suffix.

For a given O Master Horizon, let

γ = (the smaller of: 120, Horizon Lower Boundary) - (Horizon Upper Boundary)

If $\gamma<0$, reset $\gamma=0$.

Let:

$F\gamma$ = Sum of all γ values for all O Master Horizons with an F Suffix.

$M\gamma$ = Sum of all γ values for all O Master Horizons with an M Suffix.

$H\gamma$ = Sum of all γ values for all O Master Horizons with an H Suffix.

For a given Organic Horizon, let

δ = (the smaller of: 160, Horizon Lower Boundary) - (Horizon Upper Boundary)

If $\delta<0$, reset $\delta=0$.

Let:

$F\delta$ = Sum of all δ values for all O Master Horizons with an F Suffix.

$M\delta$ = Sum of all δ values for all O Master Horizons with an M Suffix.

$H\delta$ = Sum of all δ values for all O Master Horizons with an H Suffix.

$L\delta$ = Sum of all δ values for all O Master Horizons with a CO Suffix.

For a given Mineral Horizon, let

ε = (the smaller of: 160, Horizon Lower Boundary) - (the larger of: 40, Horizon Upper Boundary)

If $\varepsilon<0$, reset $\varepsilon=0$.

Let:

T_ε = Sum of all ε values for all Mineral Horizons.

2.6.1 There exists a W Master Horizon with a Horizon Upper Boundary <120 cm.
2.6.2 Same as 1.2.6
2.6.3 Same as 1.2.7
2.6.4 T >
2.6.5 F > M and F > H
2.6.6 M ≥ F and M > H
2.6.7 H ≥ M and H ≥ F
2.6.8 F ≥ M and F ≥ H
2.6.9 M ≥ F and M > H
2.6.10 H ≥ M and H ≥ F
If (2.6.2 or 2.6.3) Soil is Folisol (.FO). go to 3.20.
If ((2.6.1 or 2.6.4) and 2.6.8) Soil is Fibrisol (.F). go to 3.17.
If ((2.6.1 or 2.6.4) and 2.6.9) Soil is Mesisol (.M). go to 3.18.
If ((2.6.1 or 2.6.4) and 2.6.10) Soil is Humisol (.H). go to 3.19.
If (2.6.5) Soil is Fibrisol (.F). go to 3.17.
If (2.6.6) Soil is Mesisol (.M). go to 3.18.
If (2.6.7) Soil is Humisol (.H). go to 3.19.
Soil cannot be classified. FLAG & STOP.

2.7 Podzolic Order
The following three Statements concern the B Master Horizon recognized in 1.3.2.
2.7.1 There exists an H Suffix.
2.7.2 There exists an HF Suffix.
If (2.7.1) Soil is Humic Podzol (.HP). go to 3.21.
If (2.7.2) Soil is Ferro-Humic Podzol (.FHP). go to 3.22.
Soil is Humo-Ferric Podzol (.HFP). go to 3.23.

2.8 Regosolic Order
2.8.1 The first Mineral Horizon is an A Master Horizon,
with an H Suffix, and
with a thickness ≥ 10.
If (2.8.1) Soil is Humic Regosol (.HR). go to 3.25.
Soil is Regosol (.R). go to 3.24.

2.9 Solonetzic Order
2.9.1 There exists an A Master Horizon
with an E Suffix and
with Horizon Boundary Distinctness = A, and
with Thickness Min $\geq$ 2.
2.9.2 There exists an AB or a BA Master Horizon
If (not 2.9.1) Soil is Solonetz (.SZ). go to 3.26.
If (2.9.2) Soil is Solod (.SO). go to 3.28.
Soil is Solodized Solonetz (.SS). go to 3.27.

3. <u>Pedon Validation - to Subgroup Level - Sequential Key</u>

3.1 Melanic Brunisol
3.1.1 There exists a Master Horizon with one of the following:
(a) A G Suffix and with a Horizon Upper Boundary < 100;
(b) a GJ Suffix and with a Horizon Upper Boundary ≤ 50;
(c) a GJ Suffix and with a Horizon Upper Boundary ≤ 100 and with Mottle Contrast ≠ F.
3.1.2 There exists an A Master Horizon with an E or EJ Suffix, and with a thickness ≥ 2.
If (3.1.1 and 3.1.2) Soil is GLE.MB. go to 4.
If (3.1.1) Soil is GL.MB. go to 4.
If (3.1.2) Soil is E.MB. go to 4.
Soil is O.MB. go to 4.

3.2 Eutric Brunisol
3.2.1 Same as 3.1.1
3.2.2 Same as 3.1.2
If (3.2.1 and 3.2.2) Soil is GLE.EB. go to 4.
If (3.2.1) Soil is GL.EB. go to 4.
If (3.2.2) Soil is E.EB. go to 4.
Soil is O.EB. go to 4.

3.3 Sombric Brunisol
3.3.1 Same as 3.1.1
3.3.2 Same as 3.1.2
3.3.3 There exists a B or BC Master Horizon with
(a) a C Suffix, and
(b) Cementation degree = S or I, and
(c) Cementation Extent = C.
If (3.3.3) Soil is DU.SB. go to 4.
If (3.3.1) and 3.3.2) Soil is GLE.SB. go to 4.
If (3.3.1) Soil is GL.SB. go to 4.
If (3.3.2) Soil is E.SB. go to 4.
Soil is O.SB. go to 4.

3.4 Dystric Brunisol
3.4.1 Same as 3.1.1
3.4.2 Same as 3.1.2
3.4.3 Same as 3.3.3
If (3.4.3) Soil is DU.DYB. go to 4.
If (3.4.1 and 3.4.2) Soil is GLE.DYB. go to 4.
If (3.4.1) Soil is GL.DYB. go to 4.
If (3.4.2) Soil is E.DYB. go to 4.
Soil is O.DYB. go to 4.

3.5 Brown Chernozem
3.5.1 There exists a Master Horizon with a GJ Suffix and with a Horizon Upper Boundary < 50.
3.5.2 There exists an A Master Horizon with an E or EJ Suffix, and with a thickness ≥ 2.
3.5.3 These does not exist a B Master Horizon with a thickness ≥ 5.
3.5.4 There exists a B Master Horizon with an NJ Suffix.
3.5.5 There exists a B Master Horizon with a K Suffix.
If (3.5.1 and 3.5.4) Soil is GLSZ.B. go to 4.
If (3.5.1 and 3.5.2) Soil is GLE.B. go to 4.
If (3.5.1 and 3.5.5) Soil is GLCA.B. go to 4.
If (3.5.1 and 3.5.3) Soil is GLR.B. go to 4.
If (3.5.1) Soil is GL.B. go to 4.
If (3.5.4) Soil is SZ.B. go to 4.
If (3.5.2) Soil is E.B. go to 4.
If (3.5.5) Soil is CA.B. go to 4.
If (3.5.3) Soil is R.B. go to 4.
Soil O.B go to 4.

3.6 Dark Brown Chernozem
3.6.1 Same as 3.5.1
3.6.2 Same as 3.5.2
3.6.3 Same as 3.5.3
3.6.4 Same as 3.5.4
3.6.5 Same as 3.5.5
If (3.6.1 and 3.6.4) Soil is GLSZ.DB. go to 4.
If (3.6.1 and 3.6.2) Soil is GLE.DB. go to 4.
If (3.6.1 and 3.6.5) Soil is GLCA.DB. go to 4.
If (3.6.1 and 3.6.3) Soil is GLR.DB. go to 4.
If (3.6.1) Soil is GL.DB go to 4.
If (3.6.4) Soil is SZ.DB. go to 4.
If (3.6.2) Soil is E.DB. go to 4.
If (3.6.5) Soil is CA.DB. go to 4.
If (3.6.3) Soil is R.DB. go to 4.
Soil is O.DB. go to 4.

3.7 Black Chernozem
3.7.1 Same as 3.5.1
3.7.2 Same as 3.5.2
3.7.3 Same as 3.5.3
3.7.4 Same as 3.5.4
3.7.5 Same as 3.5.5
If (3.7.1 and 3.7.4) Soil is GLSZ.BL. go to 4.
If (3.7.1 and 3.7.2) Soil is GLE.BL. go to 4.
If (3.7.1 and 3.7.5) Soil is GLCA.BL. go to 4.
If (3.7.1 and 3.7.3) Soil is GLR.BL. go to 4.
If (3.7.1) Soil is GL.BL. go to 4.
If (3.7.4) Soil is SZ.BL. go to 4.
If (3.7.2) Soil is E.BL. go to 4.
If (3.7.5) Soil is CA.BL. go to 4.
If (3.7.3) Soil is R.BL. go to 4.
Soil is O.BL go to 4.

3.8 Dark Grey Chernozem
3.8.1 Same as 3.5.1
3.8.2 Same as 3.5.3
3.8.3 Same as 3.5.4
3.8.4 Same as 3.5.5
If (3.8.1 and 3.8.3) Soil is GLSZ.DG. go to 4.
If (3.8.1 and 3.8.4) Soil is GLCA.DG. go to 4.
If (3.8.1 and 3.8.2) Soil is GLR.DG. go to 4.
If (3.8.1) Soil is GL.DG. go to 4.
If (3.8.3) Soil is SZ.DG. go to 4.
If (3.8.4) Soil is CA.DG. go to 4.
If (3.8.2) Soil is R.DG. go to 4.
Soil is O.DG. go to 4.

3.9 Turbic Cryosol
3.9.1 There exists a B or C Master Horizon with a G Suffix.
3.9.2 There does not exist a B Master Horizon.
3.9.3 There exists a B Master Horizon without a Y Suffix.
If (3.9.1) Soil is GL.TC. go to 4.
If (3.9.2) Soil is R.TC. go to 4.
If (3.9.3) Soil is BR.TC. go to 4.
Soil is O.TC. go to 4.

3.10 Static Cryosol
3.10.1 Same as 3.9.1
3.10.2 Same as 3.9.2
3.10.3 Same as 3.9.3
If (3.10.1) Soil is GL.SC. go to 4.
If (3.10.2) Soil is R.SC. go to 4.
If (3.10.3) Soil is BR.SC. go to 4.
Soil is O.SC. go to 4.

3.11 Organic Cryosol
3.11.1 There exists a Mineral Master Horizon with a Horizon Upper Boundary $\leq$ 100 cm.
3.11.2 There exists a W Master Horizon with a Horizon Upper Boundary $\leq$ 100 cm. and with either a thickness > 30 cm. or with no Horizon Lower Boundary specified.
3.11.3 There exists an O Master Horizon with an H Suffix but with no Z Suffix.
3.11.4 There exists an O Master Horizon with an M Suffix but with no Z Suffix.
3.11.5 There exists an O Master Horizon with an F Suffix but with no Z Suffix.
3.11.6 There exists an O Master Horizon with both H and Z Suffixes.
3.11.7 There exists an O Master Horizon with both M and Z Suffixes.
3.11.8 There exists an O Master Horizon with both F and Z Suffixes.
If (3.11.2) Soil is GC.OC. go to 4.
If (3.11.1 and 3.11.3) Soil is THU.OC. go to 4.
If (3.11.1 and 3.11.4) Soil is TME.OC. go to 4.
If (3.11.1 and 3.11.5) Soil is TFI.OC. go to 4.
If (3.11.6) Soil is HU.OC. go to 4.
If (3.11.7) Soil is ME.OC. go to 4.
If (3.11.8) Soil is FI.OC. go to 4.
If none of the above then FLAG (.OC - can go no further) & STOP.

3.12 Humic Gleysol
3.12.1 There exists a B Master Horizon with a GF Suffix.
3.12.2 There does not exist a B Master Horizon with a thickness $\geq$ 5.
If (3.12.1) Soil is FE.HG. go to 4.
If (3.12.2) Soil is R.HG. go to 4.
Soil is O.HG. go to 4.

3.13 Gleysol
3.13.1 Same as 3.12.1
3.13.2 Same as 3.12.2
If (3.13.1) Soil is FE.G. go to 4.
If (3.13.2) Soil is R.G. go to 4.
Soil is O.G. go to 4.

3.14 Luvic Gleysol
3.14.1 Same as 3.12.1
3.14.2 There exists a B Master Horizon wih an X Suffix.
If (3.14.2) Soil is FR.LG. go to 4.
If (3.14.1) Soil is FE.LG. go to 4.
If (2.4.2 or 2.4.3) Soil is HU.LG. go to 4.
Soil is O.LG. go to 4.

3.15 Gray Brown Luvisols

3.15.1 There exists a B Master Horizon
with an FJ or GJ or M Suffix and
with a thickness > 5, and
if the Colour 1 Aspect = 1 or 3 or 5 or 7, the Colour 1 Chroma ≥ 3.

3.15.2 There exists a B Master Horizon
with an F Suffix and
with a thickness > 10.

3.15.3 There exists a Master Horizon with one of the following:
(a) a G Suffix and with a Horizon Upper Boundary < 100;
(b) a GJ Suffix and with a Horizon Upper Boundary ≤ 50 and with Mottle Contrast = D;
(c) a GJ Suffix and with a Horizon Upper Boundary < 100 and with Mottle Contrast = P.

3.15.4 There exists a B Master Horizon with an F Suffix.

If (3.15.2 and 3.15.3) Soil is GLPZ.GBL. go to 4.
If ((3.15.1 or 3.15.4 and 3.15.3) Soil is GLBR.GBL. go to 4.
If (3.15.3) Soil is GL.GBL. go to 4.
If (3.15.2) Soil is PZ.GBL. go to 4.
If (3.15.1 or 3.15.4) Soil is BR.GBL. go to 4.
Soil is O.GBL.

3.16 Gray Luvisol

3.16.1 The same as 3.15.1.

3.16.2 The same as 3.15.2.

3.16.3 There exists an A Master Horizon
with an H Suffix and
with a thickness > 5.

3.16.4 There exists an A Master Horizon
with a P Suffix and
with a thickness > 5.
and if the Colour 1 Aspect is 2 or 4 or 6 or 8, the Colour 1 Value ≥ 3.5 and < 5.

3.16.5 Same as 3.15.3.

3.16.6 There exists a B or BC Master Horizon with an X Suffix.

3.16.7 Same as 3.5.4

3.16.8 Same as 3.15.4

If (3.16.5 and 3.16.6) Soil is GLFR.GL. go to 4.
If (3.16.5 and 3.16.7) Soil is GLSZ.GL. go to 4.
If (3.16.2 and 3.16.5) Soil is GLPZ.GL. go to 4.
If ((3.16.1 or 3.16.8) and 3.16.5) Soil is GLBR.GL. go to 4.
If ((3.16.3 or 3.16.4) and 3.16.5) Soil is GLD.GL. go to 4.
If (3.16.5) Soil is GL.GL. go to 4.
If (3.16.6) Soil is FR.GL. go to 4.
If (3.16.7) Soil is SZ.GL. go to 4.
If (3.16.2) Soil is PZ.GL. go to 4.
If (3.16.1 or 3.16.8) Soil is BR.GL. go to 4.
If (3.16.3 or 3.16.4) Soil is D.GL. go to 4.
Soil is O.GL. go to 4.

3.17 Fibrisol
3.17.1 There exists a W Master Horizon with a Horizon Upper Boundary < 160.
3.17.2 T $\geq$ 30.
3.17.3 T $\geq$ 5.
3.17.4 M $\geq$ 25.
3.17.5 H $\geq$ 12.
3.17.6 L $\geq$ 5.
3.17.7 M $\geq$ 25.
3.17.8 H $\geq$ 12.
If (3.17.1) Soil is HY.F. go to 4.
If (3.17.2 and 3.17.3) Soil if THU.F. go to 4.
If (3.17.2 and 3.17.4) Soil is TME.F. go to 4.
If (3.17.2) Soil is T.F. go to 4.
If (3.17.6) Soil is LM.F. go to 4.
If (3.17.3) Soil is CU.F. go to 4.
If (3.17.8) Soil is HU.F. go to 4.
If (3.17.7) Soil is ME.F. go to 4.
Soil is TY.F. go to 4.

3.18 Mesisol
3.18.1 Same as 3.17.1
3.18.2 T $\geq$ 30.
3.18.3 T $\geq$ 5.
3.18.4 F $\geq$ 25.
3.18.5 H $\geq$ 25.
3.18.6 L $\geq$ 5.
3.18.7 F $\geq$ 25.
3.18.8 H $\geq$ 25.
If (3.18.1) Soil is HY.M. go to 4.
If (3.18.2 and 3.18.5) Soil if THU.M. go to 4.
If (3.18.2 and 3.18.4) Soil if TFI.M. go to 4.
If (3.18.2) Soil is T.M. go to 4.
If (3.18.6) Soil is LM.M. go to 4.
If (3.18.3) Soil is CU.M. go to 4.
If (3.18.8) Soil is HU.M. go to 4.
If (3.18.7) Soil is FI.M. go to 4.
Soil is TY.M. go to 4.

3.19 Humisol
3.19.1 Same as 3.17.1.
3.19.2 T $\geq$ 30.
3.19.3 T $\geq$ 5.
3.19.4 F $\geq$ 12.
3.19.5 M $\geq$ 25.
3.19.6 L $\geq$ 5.
3.19.7 F $\geq$ 12.
3.19.8 M $\geq$ 25.
If (3.19.1) Soil is HY.H. go to 4.
If (3.19.2 and 3.19.5) Soil is TME.H. go to 4.
If (3.19.2 and 3.19.4) Soil is TFI.H. go to 4.
If (3.19.2) Soil is T.H. go to 4.
If (3.19.6) Soil is LM.H. go to 4.
If (3.19.3) Soil is CU.H. go to 4.
If (3.19.8) Soil is ME.H. go to 4.
If (3.19.7) Soil is FI.H. go to 4.
Soil is TY.H. go to 4.

3.20 Folisol
Soil is Ty.FO. go to 4.

3.21 Humic Podzol

3.21.1 There exists a B Master Horizon with all of the following:

(a) an H, and HF, or an F Suffix;
(b) a C Suffix;
(c) Cementation Degree = S or I;
(d) thickness $\geq$ 3.

3.21.2 There exists a B Master Horizon with all of the following:

(a) an H, an HF, or an F Suffix;
(b) a C Suffix;
(c) Cementation Degree = S or I.

3.21.3 Soil Classification Subgroup is P.

3.21.4 There exists a BC Master Horizon with all of the following:

(a) a C Suffix;
(b) Cementation Degree = S or I;
(c) Cementation Extent = C.

3.21.5 Same as 3.14.2

If (3.21.1 and not 3.21.3) Soil is OT.HP. go to 4.
If (3.21.2 and 3.21.3) Soil is P.HP. go to 4.
If (3.21.4) Soil is DU.HP. go to 4.
If (3.21.5) Soil is FR.HP. go to 4.
Soil is O.HP. go to 4.

3.22 Ferro-Humic Podzol

3.22.1 There exists a Master Horizon with one of the following:

(a) a G Suffix and with a Horizon Upper Boundary < 100;
(b) a GJ Suffix and with a Horizon Upper Boundary < 100 and with Mottle Contrast $\neq$ F.

3.22.2 There exists an A Master Horizon with both of the following:

(a) an H Suffix;
(b) thickness $\geq$ 10.

3.22.3 Same as 3.21.1.
3.22.4 Same as 3.21.2.
3.22.5 Same as 3.21.3.
3.22.6 Same as 3.21.4.
3.22.7 Same as 3.14.2.
3.22.8 There exists a B Master Horizon wih a T Suffix.

If (3.22.1 and 3.22.3 and not 3.22.5) Soil is GLOT.FHP. go to 4.
If (not 3.22.1 and 3.22.3 and not 3.22.5) Soil is OT.FHP. go to 4.
If (3.22.4 and 3.22.5) Soil is P.FHP. go to 4.
If (3.22.6) Soil is DU.FHP. go to 4.
If (3.22.7) Soil is FR.FHP. go to 4.
If (3.22.8) Soil is LU.FHP. go to 4.
If (3.22.1 and 3.22.2) Soil is GLSM.FHP. go to 4.
If (3.22.1) Soil is GL.FHP. go to 4.
If (3.22.2) Soil is SM.FHP. go to 4.
Soil is O.FHP. go to 4.

3.23 Humo-Ferric Podzol
3.23.1 Same as 3.22.1.
3.23.2 Same as 3.22.2.
3.23.3 Same as 3.21.1.
3.23.4 Same as 3.21.2.
3.23.5 Same as 3.21.3.
3.23.6 Same as 3.21.4.
3.23.7 Same as 3.14.2.
3.23.8 Same as 3.22.8.
If (3.23.1 and 3.23.3 and not 3.23.5) Soil is GLOT.HFP. go to 4.
If (not 3.23.1 and 2.23.3 and not 3.23.5) Soil is OT.HFP. go to 4.
If (3.23.4 and 3.23.5) Soil is P.HFP. go to 4.
If (3.23.6) Soil is DU.HFP. go to 4.
If (3.23.7) Soil is FR.HFP. go to 4.
If (3.23.8) Soil is LU.HFP. go to 4.
If (3.23.1 and 3.23.2) Soil is GLSM.HFP. go to 4.
If (3.23.1) Soil is GL.HFP. go to 4.
If (3.23.2) Soil is SM.HFP. go to 4.
Soil is O.HFP. go to 4.

3.24 Regosol
3.24.1 There exists a Master Horizon with a B Suffix.
3.24.2 There exists a Master Horizon with a GJ Suffix.
If (3.24.1 and 3.24.2) Soil is GLCU.R. go to 4.
If (3.24.2) Soil is GL.R. go to 4.
If (3.24.1) Soil is CU.R. go to 4.
Soil is O.R. go to 4.

3.25 Humic Regosol
3.25.1 Same as 3.24.1.
3.25.2 Same as 3.24.2.
If (3.25.1 and 3.25.2) Soil is GLCU.HR. go to 4.
If (3.25.2) Soil is GL.HR. go to 4.
If (3.25.1) Soil is CU.HR. go to 4.
Soil is O.HR. go to 4.

3.26 Solonetz
3.26.1 There exists an A Master Horizon with a pH-CaCl2 value > 8.5
3.26.2 There exists an A Master Horizon such that If Colour 1 Aspect = 2 or 4 or 6 or 8, Colour 1 Value > 4.5.
3.26.3 There exists an A Master Horizon such that If Colour 1 Aspect = 2 or 4 or 6 or 8, Colour 1 Value ≤ 4.5 and ≥ 3.5.
3.26.4 there exists an A Master Horizon such that If Colour 1 Aspect = 2 or 4 or 6 or 8, Colour 1 Value < 3.5.
3.26.5 There exists a Master Horizon with a GJ Suffix, and with a Horizon Upper Boundary ≤ 50.
If (3.26.1) Soil is A.SZ. go to 4. If 3.26.1 not answerable and A.SZ is designated, assume it is correct and go to 4.
If (3.26.2 and 3.26.5) Soil is GLB.SZ. go to 4.
If (3.26.3 and 3.26.5) Soil is GLDB.SZ. go to 4.
If (3.26.4 and 3.26.5) Soil is GLBL.SZ. go to 4.
If (3.26.5 and 3.26.2 not answerable) Soil is GLB.SZ or GLDB.SZ or GLBL.SZ. If designation is one of these assume correct and go to 4. If it is not one of these, it is wrong. FLAG & STOP.
If (3.26.2) Soil is B.SZ. go to 4.
If (3.26.3) Soil is DB.SZ. go to 4.
If (3.26.4) Soil is BL.SZ. go to 4.
If (3.26.2 not answerable) assume designation is correct and go to 4.

3.27 Solodized Solonetz
3.27.1 Same as 3.26.2.
3.27.2 Same as 3.26.3.
3.27.3 Same as 3.26.4.
3.27.4 Same as 3.26.5.
If (3.27.1 and 3.27.4) Soil is GLB.SS or GLG.SS. If designation is one of these assume correct and go to 4. If not one of these, it is wrong. FLAG & STOP.
If (3.27.2 and 3.27.4) Soil is GLDB.SS or GLDG.SS. If designation is one of these assume correct and go to 4. If not one of these, it is wrong. FLAG & STOP.
If (3.27.3 and 3.27.4) Soil is GLBL.SS. go to 4.
If (3.27.4 and 3.27.1 not answerable) Soil is GLB.SS or GLG.SS or GLDB.SS or GLDG.SS or GLBL.SS. If designation is one of these assume correct and go to 4. If not one of thee, it is wrong. FLAG & STOP.
If (3.27.1) Soil is B.SS or G.SS. If designation is one of these assume correct and go to 4. If not one of these, it is wrong. FLAG & STOP.
If (3.27.2) Soil is DB.SS or DG.SS. If designation is one of these assume correct and go to 4. If not one of these, it is wrong. FLAG & STOP.
If (3.27.3) Soil is BL.SS go to 4.
If (3.27.1 not answerable) assume designation is correct and go to 4.

3.28 Solod
3.28.1 Same as 3.26.2.
3.28.2 Same as 3.26.3.
3.28.3 Same as 3.26.4.
3.28.4 Same as 3.26.5.
If (3.28.1 and 3.28.4) Soil is GLB.SO or GLG.SO. If designation is one of these assume correct and go to 4. If not one of these, it is wrong. FLAG & STOP.
If (3.28.2 and 3.28.4) Soil is GLDB.SO or GLDG.SO. If designation is one of these assume correct and go to 4. If not one of these, it is wrong. FLAG & STOP.
If (3.28.3 and 3.28.4) Soil is GLBL.SO go to 4.
If (3.28.4 and 3.28.1 not answerable) Soil is GLB.SO or GLG.SO or GLDB.SO or GLDG.SO or GLBL.SO. If designation is one of these assume correct and go to 4. If not one of these, it is wrong, FLAG & STOP.
If (3.28.1) Soil is B.SO or G.SO. If designation is one of these assume correct and go to 4. If not one of these, it is wrong. FLAG & STOP.
If (3.28.2) Soil is DB.SO or DG.SO. If designation is one of these assume correct and go to 4. If not one of these, it is wrong. FLAG & STOP.
If (3.28.3) Soil is BL.SO. go to 4.
If (3.28.1 not answerable) assume designation is correct and go to 4.

4. Output

If Classification matches designation, indicate by Statement:
SOIL CLASSIFICATION APPEARS CORRECT.
If Classification does not match designation, indicate by the following:
SOIL CLASSIFICATION FOR FOMID 82-99999 APPEARS INCORRECT.
YOU HAVE CLASSIFIED SOIL AS: xxxx.xxx.
COMPUTED CLASSIFICATION IS: xxxx.xxx.
(Where several possibilities exist, they should be listed).